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AN

ENCYCLOPÆDIA

OF

USEFUL AND ORNAMENTAL PLANTS,

CONSISTING OF

BEAUTIFUL AND ACCURATE COLOURED FIGURES OF PLANTS

USED IN THE

ARTS, IN MEDICINE, AND FOR ORNAMENT;

WITH COPIOUS SCIENTIFIC AND POPULAR DESCRIPTIONS OF EACH,
ACCOUNTS OF THEIR USES, AND MODE OF CULTURE,
AND NUMEROUS INTERESTING ANECDOTES.

B 604

BY THE LATE

GILBERT THOMAS BURNETT, ESQ.,

PROFESSOR OF BOTANY AT KING'S COLLEGE, LONDON.

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NEW EDITION.

EDITED BY M. A. BURNETT.

IN TWO VOLUMES.

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VOL I.

LONDON:
GEORGE WILLIS, GREAT PIAZZA, COVENT GARDEN.

1852.

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JOHN ROWE, PRINTER,
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ADVERTISEMENT.

Among the numerous Botanical Works which have appeared, there is, it is presumed, not one, which unites so many excellencies as the present. Illustrations of merely Ornamental Plants existed in abundance, but no work which likewise presented those remarkable for their Utility and general Interest. This task the accomplished author of the present work has executed with the greatest success. The most remarkable Plants mentioned in the Bible, or which have engaged the attention of Travellers in various parts of the world—or have been the theme of poets, are here accurately figured and described. The most beautiful Plants, which embellish our gardens and conservatories, as well as those of foreign countries, are exhibited, together with many upon which so much of our health and comfort depend, such as Tea, Ginger, Oranges, Tobacco, &c. Many of the plants which decorate our fields and hedges, and are employed for domestic and medical purposes, are given, as well as those which like the Deadly Nightshade, Hellebore, and others, ought to be known to be avoided. It thus answers the purpose of a practical and scientific Herbal.

The amount of useful and entertaining information given in the descriptions is really extraordinary, combining all that could be collected from the best Botanists, Historians, and Travellers, from the earliest ages to the present time. Altogether it forms an elegant embellishment to the Drawing Room Table, a useful Guide to the Cultivator, and a fund of valuable knowledge to every one to whom the beauties and curiosities of the Floral World are objects of interest and delight.

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Acacia vera.

ACACIA VERA.—EGYPTIAN GUM-ARABIC ACACIA, OR EGYPTIAN THORN.

CLASS XXIII. POLYGAMIA.—ORDER I. MONŒCIA.

NATURAL ORDER, LEGUMINOSÆ.——THE PEA TRIBE.

THIS plant, which affords the finest Gum Arabic of commerce, was originally referred by Linnæus to the extensive genus Mimosa, under the title of Mimos *Nilotica;* but it has been removed by Willdenow with other species to the genus Acacia. It is a native of the sandy deserts of Arabia, Egypt, and the western parts of Asia; and, according to Mr. Jackson, grows abundantly in Barbary, and other parts of Africa. The original gum-arabic tree was known to the earlier botanists, and appears to have been cultivated by Gerarde in 1596; but few persons are acquainted with living, or even dried specimens especially of the legume.

It rises several feet in height; the stem is crooked, and covered with a smooth grey bark, which on the branches has a yellowish green, or purplish tinge. The leaves are alternate, bipinnate, composed of several pairs of opposite pinnæ, with numerous pairs of small, deep green, smooth leaflets. At the base of the leaves are two opposite awl-shaped spines, nearly erect, and having a slight, glandular swelling below. The flowers are of a bright yellow colour, and collected into globular heads, four or five together, upon slender foot-stalks, that arise from the axillæ of the leaves. Immediately below each head of flowers, is placed a pair of small, ovate bracteas. The calyx is bell-shaped and 5-parted; the stamens are numerous, thread-like, and furnished with roundish, yellow anthers; the germen is conical, with a slender style and simple stigma. The legumes are four or five inches long, moniliform, nearly flat, smooth, of a pale brown colour, and contracted into numerous orbicular portions, in each of which is lodged a flattish seed. This character, as a distinguished botanist justly observes, clearly distinguishes the present species from Acacia *Arabica;* it being more strictly contracted into orbicular portions, with an obliquity well expressed in the wooden cut of Veslingius.

The gum, says Mr. Jackson, called Morocco or Barbary gum, is produced from a high, thorny tree, called *Atteleh,* having leaves similar to the *Arar,* or Gum Sandrac tree, and the juniper. The best kind of Barbary gum is procured from the trees of Morocco, Ras-el-wed, in the province of Suse, and Bled-hummer, in the province of Abda: the secondary qualities are the produce of the Kedma, Duguella, and other provinces. The tree grows abundantly in the Atlas mountains, and is found also in Bled-eljerrede. The gum, when new, emits a faint smell, and when stowed in the warehouse, it is heard to crack spontaneously for several weeks; and this cracking is the surest criterion of new gum, as it never does so when old: there is, however, scarcely any difference in the quality. The wood (of the tree) is hard and takes a good polish; its seeds, which are enclosed in a hard, coriaceous pericarp, resemble those of the lupin, yield a reddish dye, and are used by the tanners in the preparation of leather. These seeds attract the goats, who are very fond of eating them. The more sickly the tree appears, the more gum it yields; and the hotter the weather, the more prolific it is. A wet winter, and a cool, or mild summer, are unfavourable to gum.—(Jackson's Hist. of Morocco, fol. 84.)

The purest and finest gum-arabic is brought in caravans to Cairo, by the Arabs of the country round Mount Tor and Sinai; they bring it from this distance on the backs of camels, sewn up in bags, and often adulterated with sand and other matters. The gum exudes spontaneously from the bark of the trunk and branches of the tree, in a soft, or nearly fluid state, and hardens by exposure to the air, or heat of the sun. It begins to flow in December, immediately after the rainy season, near the flowering time of the tree. Afterwards, as the weather becomes hotter, incisions are made through the bark to assist the transudation of the juice. All the gum that was employed in medicine, or the arts, was formerly brought from Arabia, or from Egypt, whence its name was derived; and it was not till about two hundred years ago, that the gum of Senegal was introduced into commerce. That adventurous and persevering naturalist, Adanson, who explored the district of the river Senegal with so much assiduity, contributed to extend our knowledge of the trees from which the gum might be procured in the western parts of Africa; and at present nearly the whole of what is imported into Europe comes from that country.

Several kinds of gum, yielded by different trees, are occasionally to be met with, but that which is commonly substituted for it, as we have already observed, is brought from the island of Senegal, on the coast of Africa, and is called *Gum Senegal.* It is generally in larger masses, and is of a darker colour; is more tenacious, and breaks with a vitreous, even fracture. It is not so soluble in water as the true Gum Arabic, and leaves at the bottom a stringy substance. It is the sort chiefly employed by the calico-printers, but does not go so far in thickening water. In India, what is termed the *Babul* tree, (Acacia *Arabica,*) furnishes a very fine gum, which is extensively employed in the place of Gum Arabic; and Dr. Ainslie thinks that it is the same tree that is referred to by Dr. Wittman, in his Travels, (p. 231,) as yielding Gum Arabic in Turkey. It is in small clear masses, of a semi-transparent or very pale yellow colour; but it is essential to have this gum well garbled in India; and care should be taken that it is not intermixed with a

gum resembling it, but generally in larger pieces, which is quite worthless. The Feronia *elephantum* of Roxburgh also yields a valuable gum, similar to Gum Arabic, which is commonly used by all the practitioners of Lower India; and, according to Dr. F. Hamilton, gum, simply so called, may be procured in the Mysore, from the Melia *Azederach;* Chironia *glabra;* Mangifera *indica;* Cassia *auriculata;* Ægle *marmelos;* Shorea *robusta,* and several other trees.

Qualities and Chemical Properties.—Gum Arabic is usually met with in small pieces, like tears; moderately hard; somewhat brittle, and may be reduced to a fine white powder. When pure, it is colourless, but has commonly a yellow tinge, and is not destitute of lustre. It has no smell. Its taste is insipid. Its specific gravity varies from 1.3161 to 1.4317. Water may be said to dissolve it entirely. The solution is known by the name of *mucilage;* which is thick, and adhesive: it is often used as a paste, and to give stiffness and lustre to linen. When spread out thin, it soon dries, but readily attracts moisture, and becomes glutinous. When mucilage is evaporated, the gum is obtained unaltered. It may be kept for years, without undergoing putrefaction. When gum is exposed to heat, it softens and swells, but does not melt; it emits air bubbles, blackens, and at last, when nearly reduced to charcoal, emits a low blue flame. After the gum is consumed, there remains a small quantity of white ashes, composed chiefly of the carbonates of lime and potash. Vegetable acids dissolve gum without alteration: the strong acids decompose it. Chlorine converts gum into nitric acid, according to the experiments of Vauquelin. If nitric acid be slightly heated upon gum till it has dissolved it, and till a little nitrous gas is exhaled, the solution, on cooling, deposits saclactic acid. Malic acid is formed at the same time; and if the heat be continued, the gum is at last changed into oxalic acid. Thus, no less than three acids are developed by the action of nitric acid on gum.

Gum is insoluble in alcohol and ether, and both precipitate mucilage.

From the experiments of Vauquelin, it appears that gum contains traces of iron; and he conjectures, that the lime which it contains is usually combined with acetic or malic acid. Berzelius analysed it, by burning it along with chlorate of potash, and found it composed of,

Oxygen	51.306
Carbon	41.906
Hydrogen	6.788
	100.000

Medical Properties and Uses.—Gum arabic is extensively employed for a number of purposes, both in the arts and in medicine. It is frequently used either to suspend in water various substances, which could not otherwise be kept equally diffused in that liquid, or as a useful colourless cement. Gum Senegal resembles gum arabic so nearly, that it is employed instead of it for all purposes in Hindustan; and in this country is used in very large quantities by the calico-printers to mix the colours and the mordaunts in block printing. Gum arabic forms the basis of crayons, and the cakes of water-colours; and of several liquid colours, of which common writing ink is a familiar example.

All the vegetable mucilages are considerably nutritious; hence in the countries where the gum arabic and Senegal grow native, they form an important article of diet, either alone or mixed with milk, rice, and other substances. In Guzerat, especially in the wastes, where the Babul tree (Acacia *arabica*) is very common, the poorer inhabitants use the gum for food. Haselquist informs us, that a caravan whose provisions were exhausted, preserved themselves from famine, by the gum arabic, which they were carrying as merchandise. During the whole time of the gum harvest, of the journey, and of the fair, the Moors of the desert live almost entirely upon it, and experience has proved that six ounces are sufficient for the support of an adult during twenty-four hours.

In medicine, this gum is used either by itself, or as a vehicle for other substances. Taken internally, its principal use is as a demulcent; to envelop acrid matter, and to cover the surfaces that are too sensible to external impressions. Hence it is sometimes allowed to dissolve gradually in the mouth, to allay irritation of the fauces; and its mucilage, sweetened with syrup, forms a useful remedy for tickling coughs, hoarseness, and diarrhœas; as well as in cardialgia, arising from oily substances received into the stomach. In these cases, it is sometimes advantageously joined with opiates and aromatics. Though its action has been supposed not to extend beyond the fauces and alimentary canal, it has been frequently recommended in a great variety of diseases. It is given, either in powder, or dissolved in almond milk, &c. one ounce being sufficient to render a pint of liquid tolerably viscid.

In pharmacy, gum arabic is employed to render oils, balsams, and resins, miscible with aqueous liquids; and to give tenacity to substances made into troches and pills. Even Mercury may be suspended in water, by being rubbed for a considerable time with gum arabic; which preparation is called, from its inventor, *Plank's solution.*

The pharmaceutical preparations into which gum arabic enters as a principal ingredient, are the *Mucilago Acaciæ,* a simple solution of one part of the gum in two of boiling water; the *Emulsio Acaciæ Arabicæ, Ph. Ed.* which is gum arabic dissolved in almond milk; the *Trochisci gummosi, Ed.,* with equal parts of gum, starch, and sugar; and the *Pulvis Tragacanthæ compositus, Ph. Lond.,* a powder made of tragacanth, gum arabic, starch, and sugar. It is also an ingredient in the *Confectio amygdalarum,* L. *Mistura cretæ,* L. *Mistura Moschi,* L. *Mistura Guaiaci,* L. and the *Pulvis cretæ compositus,* L.

In flower language Acacia signifies Platonic love.

Amygdalus communis.

AMYGDALUS COMMUNIS.—THE COMMON ALMOND TREE.

CLASS XII. ICOSANDRIA.—ORDER, I. MONOGYNIA.

NATURAL ORDER, AMYGDALEÆ.—THE ALMOND TRIBE.

The Almond-tree is a native of Syria, but is now completely naturalized in the south of Europe, and will even perfect its fruit in the most favourable parts of our island. In this country, however, it is raised chiefly on account of its being highly ornamental in shrubberies, plantations, and other pleasure-grounds, from its coming into bloom early in the spring, before the leaves are expanded.

This fact is thus delightfully touched on by Moore:

> The hope, in dreams of a happier hour
> That alights on misery's brow,
> Springs out of the silvery almond flower,
> That blooms on a leafless bough.

This tree rises to the height of about twenty feet, is much branched, and covered with a greyish bark. The leaves, which considerably resemble those of the peach, are three or four inches long, elliptical, petioled, narrow, pointed at each end, serrated, with small glands at the base, and of a bright green colour. The flowers are in numerous pairs, sessile or on very short foot-stalks, varying in colour from rose-red to snow-white, and appear in March and April. The calyx is tubular, reddish externally, and divided at the margin into five blunt segments: the corolla consists of five ovate, concave petals, irregularly notched and waved at the edges, and inserted by narrow claws into the calyx; the filaments about thirty, cylindrical, unequal, shorter than the corolla, inserted into the calyx, and furnished with roundish orange-coloured anthers; the germen is downy at the base, with a short, simple style, supporting a round stigma. The fruit, as well as the leaves, resemble those of the peach-tree, a species of the same genus, or, as some declare, a variety of the same species, but is more flat, and instead of possessing the rich pulp of the latter, has a tough coriaceous covering, which opens spontaneously at the longitudinal furrow, when ripe. The kernel, which is the Almond of the shops, is inclosed in an oblong, flattish, brittle, spongy shell, of a brown colour, pointed at one end and composed of two cotyledons enveloped with a thin brown skin.

The Almond-tree is common in China, and most parts of Asia, as well as in Barbary, where it is a native. In the south of France it is much cultivated, especially in Provence and Dauphiné, for the sake of the fruit, which is rarely matured in England.

It appears to have been known at a very remote period, and is mentioned by Hippocrates, Theophrastus, and other ancient authors. It has been long cultivated in England and is a great favourite in the shrubbery, blossoming sometimes as early as February, and forming a most enchanting harbinger of spring.

Bacon enumerates the almond among the plants which, in the climate of London, blossom in March. He holds that in "the royal ordering of gardens there ought to be gardens for all the months in the year, in which, severally, things of beauty may be then in season." Thus "for December and January, and the latter part of November, you must take such things as are green all the winter; holly, ivy, bays, juniper, cypress trees, yew, pines, fir trees, rosemary, and lavender; periwinkle, the white, the purple, and the blue; germander, flag, orange trees, lemon trees and myrtles, if they be stoved; and sweet marjoram, warm set. There followeth for the latter part of January and February, the mezereon tree, which then blossoms; crocus vernus, both the yellow and the grey; primroses, anemones, the early tulip, hyacinthus orientalis, and chamaïris fritellaria. For March, there comes violets, especially the single blue, which are the earliest; the early daffodil, the daisy, the almond tree in blossom, the peach tree in blossom, the cornelian tree in blossom, and sweetbriar. In April follow the double white violet, the wall-flower, the stock gilliflower, the cowslip, flower-de-luce and lilies of all natures; rosemary-flowers, the tulip, the double-peony, the pale

daffodil, the French honeysuckle, the cherry tree in blossom, the demascene and plum tree in blossom, the white thorn in leaf, the lilac tree." *Bacon's Essays. Of Gardens.*

Of the Almond we have two sorts, the sweet and bitter, which are the produce of mere varieties of the same species, although the fruit themselves differ so much in their sensible properties. The kinds of Almond chiefly cultivated for their fruit are, the common sweet Almond; the tender shelled; hard shelled; sweet Jordan; and bitter Almond.

Sweet Almonds are imported in mats, casks, and cases: the bitter, which come chiefly from Mogadore, arrive in boxes. When the Almond is not well preserved, it is preyed on by an insect that eats out the internal part; or, if this does not happen, the oil it contains is apt to become rancid.

Mr. Burnett says, "The genus Amygdalus is now very properly restrained to the several species of almond, of which there are only six or seven at present known. Amygdalus communis, the common almond, is the most important of these, and of it there are several varieties, such as the bitter, the sweet, the sultana, and others. The A. persicoides is believed to be a hybrid, arising from the flowers of the almond having been fertilized by the pollen of the peach. This peach almond is thought by some persons to be the one said to have been sent as a poison by the Persians to the Egyptians; but the tale has probably arisen from the circumstance of the climate of Egypt being unfavourable to the growth of peach trees, and the development of the fruit. The almond is indigenous to the northern parts of Africa and Asia, and is mentioned in Scripture as one of the choice fruits of Canaan, but although now cultivated commonly throughout Italy, France, and Spain, it does not seem to have been introduced so early as the peach; for in the time of Cato, almonds were called 'Greek nuts.' Almonds form a very nutritious but not easily digestible food. They are imported in large quantities into this country from Spain, Barbary, and the Levant."

Burnett's Outlines of Botany.

Qualities and Chemical Properties.—The kernel of the fruit of the Sweet Almond is inodorous, and farinaceous, and contains a large proportion of oil, which is more pure, and less rancid, than olive oil.[a]

M. Boullay's analysis is as follows:—

Oil	54
Albumen	24
Sugar (fluid)	6
Fibre	4
Gum	3
Pellicles	5
Water	3.5
Acetic Acid and loss	5
	100

Bitter Almonds yield less fixed oil (30—35 per cent,) and more albumen.

The *bitter almond* is also inodorous when entire, but when triturated with water, has the odour of the fresh blossom; and the taste is the pleasant bitter of the peach kernel.

M. Vogel, in his experiments on, and analysis of the bitter almonds, gives the following proportions of the substances in 100 parts:

Peelings	8.5
Fixed oil	28
Albumen	30
Sugar	6·5
Gum	3
Parenchyma	5
Essential oil and prussic acid	19

[a] It is on account of this property that the oil of almonds is much used in perfumery, and in the composition of nostrum for the hair: thus *Macassar oil* consists merely of oil of almonds coloured red with alkanet root, and flavoured with oil of cassia: *Russia oil* is oil of almonds, rendered milky by the addition of a small portion of ammonia or potash, and scented, we believe, with oil of roses.

"Essential oil of bitter almonds is largely prepared for the use of perfumers, confectioners, and cooks, who generally use what is called the essence of almonds, or a solution of 3ij. of the oil in 3vj. of alcohol; this is also the most convenient form for its pharmaceutical employment. One hundred weight of the bitter almond cake remaining in the press after the separation of the fixed oil, is put into the still with about four hundred gallons of water, this proportion being necessary to prevent the formation of a mucilaginous magma, from which the volatile oil will not pass, and which often, if brought to boil, rises up into the head and worm of the still. The produce of oil is liable to much variation, a cwt. of cake yielding from one ounce to two ounces and three-quarters by weight. It often deposits a considerable portion of white crystallized matter, which is apparently a distinct vegetable compound. The oil appears to be composed of hydrocyanic acid in union with volatile oil. This was proved by Mr. Hennel, of Apothecaries' Hall, who by digesting red oxide of mercury in it, obtained cyanuret of mercury, from which pure hydrocyanic acid was as usual procured by distilling it with muriatic acid."——BRANDE.

POISONOUS EFFECTS. The noxious influence of the oil of bitter almonds has been long known, even as early as the time of Dioscorides, for he mentions that it was then employed for killing wolves; but until Bohm, a German chemist, ascertained the fact, it was not known that its poisonous properties depended upon the presence of hydrocyanic acid. The fact, however, that this oil does contain prussic acid is easily proved both by tests and also by Hennel's process already described. The bitter almond, given in substance, is exceedingly poisonous, and the distilled water causes an action resembling that of laurel water, producing vertigo, headache, dimness of sight, vomiting, and occasionally epilepsy.

Sir B. Brodie gives the following account of the effect of the essential oil of bitter almonds upon himself.

"While engaged in these last experiments, I dipped the blunt end of a probe into the essential oil, and applied it to my tongue meaning to taste it, and having no suspicion that so small a quantity could produce any of its specific effects on the nervous system; but scarcely had I applied it, when I experienced a very remarkable and unpleasant sensation, which I referred chiefly to the epigastric region, but the exact nature of which I cannot describe, because I know nothing precisely similar to it. At the same time there was a sense of weakness in my limbs, as if I had not the command of my muscles, and I thought that I was about to fall. However, these sensations were momentary, and I experienced no inconvenience whatever afterwards.

In the fifty-seventh volume of the London Medical and Physical Journal, there is an interesting case of poisoning with bitter almonds, recorded by Mr. Kennedy. The person, a stout labourer, appeared to have eaten a great quantity of bitter almonds, which were subsequently found in the stomach. He was seen to drop down while standing near a wall; soon after which the surgeon, who was sent for, found him quite insensible, with the pulse imperceptible, and the breath exhaling the odour of bitter almonds; and death very shortly took place. Coullon has noticed many other instances where alarming symptoms were produced by this poison, but were dissipated by the supervention of vomiting. Several other fatal cases are also on record, and more will probably occur, since this oil, a composition containing prussic acid, is sold too freely by druggists under the name of *peach nut* oil. Indeed, Christison mentions a fatal case which occurred in London, where the patient, intending to compound a nostrum for worms, got by mistake from the druggists, *peach-nut*, instead of, as he wanted, beech-nut oil. Metzdorf also mentions a case, in which 3ij of this oil were swallowed by a hypochondriacal gentleman forty-eight years of age. A few minutes after, his servant, whom he sent for, found him lying in bed with his features spasmodically contracted, his eyes fixed, staring, and turned upwards, and his chest heaving convulsively and hurriedly. A Physician, who entered the room twenty minutes after the draught had been taken, found him quite insensible, the pupils immoveable, the breathing stertorous and slow, the pulse feeble and only thirty in a minute, and the breath exhaling strongly the odour of bitter almonds. Death ensued ten minutes afterwards.—*Journ. Complémentaire*, &c. xvii. 366. CHRISTISON.

MEDICAL PROPERTIES AND USES.—Almonds are demulcent, and the expressed oil is sometimes converted into an emulsion, by triturating it with mucilage and sugar, and gradually adding distilled water; the diffusion is, however, not very perfect, but a combination more complete and permanent is effected, by adding a few drops either of liquor ammoniæ, of liquor potassæ, or a few grains of the subcarbonate of potass, to the oil, swimming on the water, and without the mucilage. A more elegant emulsion is produced by the confection of almonds, which forms a useful vehicle for tincture of squills or of opium; and is advantageously administered for tickling coughs, and likewise for common drink, where the mucous membrane

of the stomach has been irritated by corrosive poisons. By triturating camphor and the resins with almonds, they are rendered miscible with water. Sweet almonds, when fresh and free from rancidity, are much used as an article of diet, and when taken in moderate quantities are sufficiently nutritive and wholesome. Six or eight blanched almonds relieve heartburn; yet too freely indulged in, they are of difficult solution and digestion, and are very apt to disagree. They occasionally bring on an attack of urticaria febrilis, (febrile nettle-rash); indeed, so powerful is this effect on one of our pupils, that three or four produce that disease in a most marked and violent manner; his whole skin being covered with weals. The late Dr. Gregory was also subject to be affected in the same way.

Almond emulsion (mistura amygdalæ of the Pharmacopœia) agrees in many of its properties with animal milk. Thus it is white; when examined by the microscope, is seen to consist of myriads of globules suspended in a liquid; chemically it is composed of fatty matter (oil), held in suspension by albumen, sugar, and gum; lastly, it agrees with milk in possessing nutritive and emollient properties.

Almond oil possesses the medical properties of the fixed oils in general. Thus its local action is emollient; swallowed in large doses it acts as a mild laxative, in moderate quantities it is nutritive, but difficult of digestion.

Oil of sweet almonds.—Notwithstanding its name, this oil is procured by pressure indiscriminately from sweet and bitter almonds. An expressor of oils informs me that the average produce is about 48 per cent., which is rather below the quantity of oil stated by Boullay to reside in their seeds.

Almond oil, when recently expressed, is turbid, but by rest and filtration becomes quite transparent. It usually possesses a slightly yellow tinge, which becomes somewhat paler by exposure to the light. It is inodorous, or nearly so, and has a bland sweetish taste. It congeals much less readily by cold than olive oil.—*Mr. Pereira in the Medical Gazette.*

Officinal Preparations. The Almond confection of the London Pharmacopœia is composed of eight ounces of sweet almonds, an ounce of gum Arabic, and four ounces of white sugar.

The Mistura Amygdalæ, or almond emulsion, is made by rubbing up two ounces and a half of the confection with an imperial pint of distilled water.

It is a soothing and agreeable mixture, belonging to the class of demulcents, but is chiefly used as a vehicle for more active remedies. When employed as a *tisane*, it may be farther diluted with cold water.

The *Sirop d'Amandes*, or *Sirop d'Orgeat* of the French Codex is made with a pound of sweet almonds, five ounces of bitter almonds, six pounds of white sugar, three pounds and four ounces of river water, and eight ounces of orange-flower water.

In the following formula, advantage is taken of the property above mentioned which almonds possess, of rendering camphor miscible with water: it is the *Mistura Camphoræ* of the Edinburgh Pharmacopœia.

Take of Camphor one scruple;
Sweet Almonds and
Pure Sugar, of each half an ounce,
Water, one pint.

Steep the almonds in hot water and peel them; rub the camphor and sugar well together in a mortar; add the almonds; beat the whole into a smooth pulp; add the water gradually, with constant stirring, and then strain.

This medicine cannot be taken *ad libitum*, like almond emulsion, as camphor is a drug of considerable power. The dose may be three or four table-spoonfuls four times a day.

In the language of flowers, the almond is the emblem of a promise.

Agave Americana.

AGAVE AMERICANA.—AMERICAN ALOE.

Class VI. HEXANDRIA.—Order I. MONOGYNIA.

Natural Order, BROMELIACEÆ.——THE PINE-APPLE TRIBE.

Fig *a*, Represents a portion of the flowering stem. *b*, Flower of the natural size. *c*, The character of the plant in its flowering state.

The different species of *Agave*, (*αγαυος* admirable) especially the *A. Americana*, or American aloe, have long been favourite greenhouse plants in England, and have even been acclimated to the southern parts of Europe. Indeed, so essential an ornament is the American agave considered in Italy, that near Milan, and in other parts of Lombardy, where it will not endure the winter, imitations of it are made, and so well constructed and painted, that they are usually mistaken for real plants. The old and absurd notion that the Agave flowers only once in a century, is scarcely worth contradicting. Several have blossomed in the neighbourhood of London within the last few years, and been made the subjects of public exhibition. The slowness of the general growth of the foliage, and the rapidity with which these plants send up their flowering stem, (fifteen or twenty feet in height, within the space of a few weeks,) is a circumstance worthy observation. In the West Indies, and even in Spain, Portugal, and Sicily, hedges of Agave are common.

The Agave Americana abounds with sap, which flows freely from wounds made either in the roots or the leaves, even for months together. This sap contains much sugar, which is converted into syrup, or obtained in a solid form, by evaporation. When allowed to ferment, this juice becomes changed into a sort of wine called *pulqué;* but large quantities are consumed in an unfermented state, the plants being tapped, and bucketsful carried to the market daily.

Avage Americana is not an aloe, though it goes by the name. The true aloes belong to another natural order, the Asphodeleæ, which are named after asphodel, or king's spear, of which there are several varieties, natives of the south of Europe. That family all contain active principles, some of which are merely pungent, as in the onion tribe; others mild, by being blanched underground, as in common asparagus; and others, again, are strongly medicinal, and used as drugs; as the aloes of Zocotora and Barbadoes. Some of that family grow to be very large trees, as, for instance, the dragon tree (Dracæna Draco.) The Agave belongs to the pine apple tribe (Bromeliaceæ.). The whole are natives of America, though many of them have been transplanted to other parts of the world. The pine-apple is well known as the most exquisitely flavoured fruit that is produced in our hot houses; and all that branch of the order are very fragrant, so that in their native countries, where they grow, though not rooted in the earth, they are much used for ornamenting the balconies of houses. The agave bears some resemblance to the pine-apple in its leaves, only they are thicker, stiffer, and less numerous; but it produces no edible fruit. The outside leaves stand round in a star, or crown, and the middle consists of a thick spire of leaves, so firmly twisted together, that the edges of the one impress the others with a seal. The points are armed with very strong spines; so that the plant is truly formidable, and answers well for hedges, only it occupies considerable breadth. With us it is cultivated only as an ornamental plant, and is generally set in large pots or tubs, though it bears in the open air in the milder districts, all the year round. Indeed, it is apt to suffer more from the constant soaking of the rain, which gets into the central spire and rots the plant. The varieties with striped leaves are most handsome; but they do not flower so readily. Indeed, none can be made to flower in this country without artificial heat. The scape, or flowering stem, rises from the centre of the tuft of leaves; it is smooth and green, and the branches that bear the individual clusters of flowers come off very gracefully in double curves, which have the bend downward near the stalk, and upward near the flowers. The appearance is not unlike that of a majestic candlestick, with successive branches, for a great portion of its height, and tall as the stem is, the form of the leaves gives it the appearance of great stability. Tropical America is the native habitation of the plant, but it abounds in the dry and warm places of the south of Europe, along the sandy shores of the Mediterranean, and especially in the south of Portugal, and in the dry districts on the confines of Portugal and Spain, so as to give a tropical appearance to European scenery. Like most plants which grow in very hot and dry places, the rind or epidermis of the leaves resists powerfully the action of heat, so that the interior of the leaves is very juicy. The juice contains a good deal both of alkali and oil (the ingredients of which soap is composed,) so that in some places of the peninsula, it is used as a substitute for soap; the pulp forming a lather with water. Cattle are also fed on the sliced or bruised leaves, at those seasons when the pastures are burnt up by the drought. So that it is a useful plant even in those parts of Europe where the vegetation of more temperate climes is apt to fail. In Mexico, it is far more useful; and is, indeed, one of the most valuable products of the soil, answering some of the purposes which are answered by rye in the north of Europe, barley in the middle latitudes, and the vine towards the south. The wines and spirits of the country are prepared from it; and though their flavour is not much relished by Europeans, they are in high estimation with the natives. When the leaves have come to their full size, and the flower stalk is about

to spring up, the heart of the plant is scooped out, and the outside left in the form of a cup, That cup soon fills with the juice, which is removed successively, till no more can be obtained, and the remaining leaves, as well as those that are cut out, are dried for fuel. The juice is set to ferment; and when it has undergone that process, it is the Pulqué, or Mexican beer. It soon gets acid, and even rancid, from the quantity of oil; but the natives relish it. When recently made, it is said to be much more palatable, and probably it does not become unpleasant sooner than the week and imperfectly fined malt liquors of this country do in the hot season. The juice of the Agave is also distilled into an ardent and intoxicating spirit, called Mercal, or Vino Mercal, in which the inconsiderate indulge to the same excess as they do in spirits from grain, potatoes, beetroot, and other vegetables, in Europe. The people of all countries are too fond of preparing such beverages; thus the natives of India lay the palm trees under contribution for their arrack; and the hemp, for that still more intoxicating and pernicious liquid which they call Bang. The fibres of the Agave are tough and straight, and they are sometimes used as cords; but the proper cordage of the tropical Americans is not made from them, but from the fibres of some of the wild Bromelias, or from the *coire*, or fibres, which surround the shell of the cocoa nut.

A specimen of the American aloe, exhibited in flower a short time ago at the Collosseum, in Regent's Park, London, was about twenty-five feet high. This plate is from a drawing made of the Agave Americana, shown January last, on the grounds of the intended Garden of the Royal Botanical Society, in the inner circle of the Regent's Park, which plant was said to be thirty feet high, save two inches. The panicle, or bunch of flowers, according to the habits of the tribe, fade off at the bottom as others come into flower at top. When first the gardener observed the leaves of this plant begin to droop, he thought it sickly, but on examination discovered in the centre of the plant, a small head shewing for flower, which grew seven inches in twenty four hours. Having acquired its full growth, it finally produces its gigantic flower stem, after which it perishes. This stem sometimes is as much as forty feet high, and continues to flower for two or three months in succession. On this Agave, were twenty six bunches of flowers, of which one was accidentally broken off on removal from Kentish Town, and each bunch contained about a hundred flowers. The leaves when we saw it had undergone considerable mutilation from the visits of the curious, the fibres of the leaves being torn or cut away, to mark handkerchiefs, &c., the largest of the thorns for cribbage pegs, &c., many, without doubt, believing in the popular opinion of its blossoming only at the end of one hundred years. The period at which the plant arrives at maturity varies, according to circumstances, from ten to fifty, or even seventy years. The leaves are about six feet long, and each leaf will continue to exist for many years, so that but a small number have withered away by the time the plant has acquired its full maturity. The dried flowering stems are an almost imperishable thatch, and finally the centre of the flowering stem split longitudinally is by no means a bad substitute for an European razor strop, owing to minute particles of silica forming one of its constituents.

An Agave Americana flowered some time ago, at the seat of the Marquis of Westminster, which had a flower stem twenty-five feet high; there were 3000 flowers sustained on thirty-two flower stalks, branching from the main pedunculus, or flower stem, like a magnificent chandelier.

Plants perhaps suffer more from invermination and the attacks of insects than from any other means; yet they are subject to other diseases, both of a sporadic and epidemic kind. Some of these even bear a likeness to animal disorders, and have, therefore, received similar names, of which Wildenow furnishes a catalogue. Thus, plants are affected with atrophy, tabes or consumption, anasarca or dropsy, hæmorrhage, lepra, verrucæ, or warts, chlorosis, icterus, ulcerations, common gangrene, and necrosis, or dry gangrene, besides various kinds of deformities, wounds, mutilations, &c. &c. They are likewise subject, especially the cacti, to a peculiar kind of sudden death, called by the French "la mort," by which, when affected, a branch or even a whole plant is as rapidly destroyed as the use of a limb is lost, or death produced in animals by apoplexy.

Plants, although they will bear judicious pruning, resent barbarous operations, and even accidental injuries. In them, and in animals, contused wounds, especially contused and punctured wounds, are much more dangerous than incised ones; of this there was an example in the Apothecaries' garden at Chelsea. It was a splendid Agave or American aloe; one of its leaves was pierced with the ferrule of an umbrella by a visitor. The parenchymatous substance became diseased: it sphacelated, and the mortification, which at first extended upwards, subsequently began to descend, and travel so rapidly towards the base, as to render amputation necessary. The operation was performed, but the mortification had previously extended in an insiduous manner so far towards the centre that a fatal termination was probable. As an illustration of the vitality of plants, and their proneness to disease from injuries, no example could be more satisfactory; but I am sure I need not formally reprobate such wanton mischief. Experiments of all kinds are justifiable, but to destroy a noble plant like that, without any object to be attained, could only have been done through thoughtless ignorance, for I would not attribute it to any other motive.

The plant, upspringing from the seed,
Expands into a perfect flower,
The virgin-daughter of the mead,
Wooed by the sun, the wind, the shower;

In loveliness beyond compare
It toils not, spins not, knows no care;

Train'd by the secret hand that brings
All beauty out of waste, and rude,
It blooms its season, dies, and flings
Its germs abroad in solitude.

Malus. Milis.

C. Chabot, Zinco, Skinner St.

MALUS MITIS.—SWEET APPLE.

CLASS XII. ICOSANDRIA.—ORDER II. PENTAGYNIA.

NATURAL ORDER, POMAÇEÆ.—THE APPLE TRIBE.

*THE Apple is a spreading tree, the leaves ovate, the flowers in terminating umbels, produced from the wood of the former year; but more generally from very short shoots or spurs, from wood of two years growth. The fruit is roundish, umbilicate at the base, and of an acid flavour. In its wild state, it is termed the crab, and is then armed with thorns, with smaller leaves, flowers, and fruit, and the pulp of the latter extremely acid. It is a native of most countries of Europe in its wild state, and the improved varieties form an important branch of culture in Britain, France, Germany and America, for the kitchen, the table, and for the manufacture of cider. From whence we at first received the cultivated apple is unknown, but in all probability it was introduced by the Romans, to whom twenty-two varieties were known in Pliny's time, and afterwards, the stock of varieties greatly increased at the Norman conquest. According to Stow, carp and pepins were brought into England by Mascal, who wrote on fruit-trees in 1725. The apple tree is supposed by some to attain a great age. Haller mentions some trees in Herefordshire that attained a thousand years, and were highly prolific; but Knight considers two hundred years as the ordinary duration of a healthy tree, grafted on a crab stock, and planted in a strong tenacious soil. Speechly mentions a tree, in an orchard at Burton-joyce near Nottingham, of about sixty years old, with branches extending from seven to nine yards round the bole, which in 1752, produced upwards of 100 pecks of apples. Of all the different fruits which are produced in Britain, none can be brought to so high a degree of perfection, with so little trouble, and of no other are there so many excellent varieties in general cultivation, calculated for almost every soil, situation, and climate which our island affords. Very good apples are grown in the Highlands and Orkneys, and even in the Shetland Isles, as well as in Devonshire and Cornwall; some sorts are ripe in the beginning of July, and others, which ripen later, will keep till June. Unlike other fruits, those which ripen latest are the best.

For pies, tarts, sauces, and the dessert, the use of the apple is familiar to every one. Duduit, of Mazeres, has found that one third of boiled apple pulp, baked with two thirds of flour, having been properly fermented with yeast for twelve hours, makes excellent bread, full of eyes, and extremely palatable and light. The fermented juice forms cider, a substitute both for grape wine and malt liquor. In confectionary, it is used for comfits, compotes, and marmalades, jellies, pastes, tarts, &c. In medicines, verjuice, or the juice of crabs, is used for sprains, and as an astringent and repellent; and with a proper addition of sugar, Withering thinks a very grateful liquor might be made with it, little inferior to Rhenish wine. Lightfoot affirms, that the crab mixed with cultivated apples, or even alone, if thoroughly ripe, will make a sound, masculine wine. The apple when ripe, is laxative, and the juice is excellent in dysentery; boiled or roasted apples fortify a weak stomach, and they are equally efficacious in putrid and malignant fevers, with the juice of lemons or currants. In perfumery, the pulp of apples beat up with lard, forms pomatum: and Bosc observes, that the prolonged stratification of apples, with elder flowers, in a close vessel, gives the former an odour of musk, extremely agreeable. In dyeing, the bark produces a yellow colour, and in general economy, the wood of the tree is used for turning, and various purposes, where hardness, compactness, and variegation of colour, are objects.

Nor does apple-wine, as the Germans call cyder, lack its poet. Philips' poem on this subject, is well known, and though it is no longer supposed to rival the Georgics, it still merits the praise of accuracy, as well as a tolerable facility of diction. Dr. Johnson was told by Miller, the famous gardener and botanist, "that there were many books written on the same subject, in prose, which do not contain so much truth as that poem." [a]

After asserting the pre-eminence of the Redstreak apple, Philips says:

——————See! the numbers flow
Easy, whilst, cheer'd with her nectareous juice,
Her's and my country's praises I exalt.
Hail Herefordian plant, that dost disdain
All other fields! Heaven's sweetest blessing, hail!
Be thou the copious matter of my song,
And thy choice nectar, on which always waits
Laughter, and sport, and care-beguiling wit,
And friendship, chief delight of human life.
What should we wish for more? or why, in quest
Of foreign vintage, insecure and mixt,
Traverse the extremest world? Why tempt the rage
Of the rough ocean, when our native glebe
Imparts, from bounteous womb, annual recruits
Of wine delectable, that far surmounts
Gallic or Latin grapes, or those that see
The setting sun near Calpe's towering height?
Nor let the Rhodian, nor the Lesbian vines
Vaunt their rich must, nor let Tokay contend
For Sovereignty: Phanæus' self must bow
To th' Ariconian vales.

[a] Lives of the Poets. *Cider, Book* i.

* For the greater part of the following article, we are indebted to two of Mr. Loudon's excellent works, and the Penny Magazine.

The apple tree was formerly supposed to be the tree of knowledge, the fruit of which was eaten by Eve in Paradise; and it is a curious fact, that the apple tree is also distinguished by legends in the mythologies of the Greeks, the Scandinavians, and the Druids. The Pagans believed that the golden fruit of the Hesperides, which it was one of the labours of Hercules to procure, in spite of the fierce dragon that guarded them and never slept, were apples; though modern writers have supposed them oranges. In the Edda we are told that the goddess Iduma had the care of apples which had the power of conferring immortality; and were, consequently, reserved for the gods, who ate of them when they began to feel themselves growing old. The evil spirit Loke took away Imuna and her apple tree, and hid them in a forest, where they could not be found by the gods. In consequence of this malicious theft, every thing went wrong in the world. The gods became old and infirm; and enfeebled both in mind and body, no longer paid the same attention to the affairs of the earth, and men having no one to look after them, fell into evil courses, and became the prey of the evil spirit. At length the gods finding matters get worse every day, roused their last remains of vigour, and combining together, forced Loke to restore the tree. The Druids paid particular reverence to the apple tree, because the misletoe was supposed to grow only on it and the oak; and also on account of the great usefulness of the fruit. In consequence of this feeling, the apple was cultivated in Britain from the earliest ages of which we have any record; and Glastonbury was called the apple orchard, from the great quantity of apples grown there, previously to the arrival of the Romans. Apples were blessed by the priests on July 25; and an especial form for this purpose is preserved in the manual of the church of Sarum.

The custom of bobbing for apples on All Hallow E'en. A kind of hanging beam which was continually turning, was suspended from the roof of the room and an apple placed at one end, and a lighted candle at the other. The parties having their hands tied behind them, and being to catch the apples with their mouths of course frequently caught the candle instead. In Warwickshire, apples are tied to a string, and caught in the same manner, but the lighted candle is omitted; and in the same county, children roast apples on a string on Christmas Eve; the first that can catch an apple, when it drops from the string, getting it. In Scotland, apples are put into a tub of water, and bobbed for with the mouth. Apples are used as part of the ingredients of mince pies, which in some parts of the country, would be thought to lose their power of "producing a happy month for every one tasted in the twelve days of Christmas," if this fruit were omitted. The custom of grippling, which may be called apple gleaning, is, or was formerly, practised in Herefordshire. It consists in leaving a few apples which are called gripples, on every tree, after the general gathering, for the boys who go with climbing poles and bags to collect them.

Thomson, in his Seasons, speaking of the apple gathering, says:—

> "The fragrant stores, the wide projecting heaps
> Of apples, which the lusty handed Year,
> Innumerous, o'er the blushing orchard shakes.
> A various spirit, fresh, delicious, keen,
> Dwells in their gelid pores; and, active, points
> The piercing cider for the thirsty tongue."

Apples often fall prematurely, from being worm eaten. The cause of this is a beautiful little moth, with wings studded with silvery shining specks, the economy of which has been satisfactorily pointed out by a writer in the *Entomological Magazine.* This insect leaves the chrysalis state about the middle of June, about which time the apples are well set. The moth now lays its eggs in the eye of the apple, one only in each, by introducing its long ovipositor between the leaves of the calyx, which forms a tent above it that effectually shields it from the inclemency of the weather, or any other casualty. "As soon as the egg hatches, the little grub gnaws a hole in the crown of the apple, and soon buries itself in its substance; and it is worthy of remark, that the rind of the apple, as if to afford every facility to the destroyer, is thinner here than in any other part, and consequently, more easily pierced. The apple most commonly attacked is the codlin, a large early sort, which ripens in July and August. "The grub, controlled by an unvarying instinct, eats into the apple obliquely downwards, and by thus avoiding the core and pips, in no way hinders its growth: at first it makes but slow progress, being little bigger than a thread; but, after a fortnight, its size and its operations have much increased. It has now eaten half way down the apple; and the position of the hole at the top, if the apple continue upright or nearly so is inconvenient for a purpose it has up to this time been used for, that is, for a pass to get rid of its little pellet, which is sometimes like fine sawdust or coarse sand. Another communication with the outer air is therefore required; and it must be so constructed as to allow the power of gravity to assist in keeping it clear: it is accordingly made directly downwards, towards that part of the apple which is lowest; and thus the trouble of thrusting the pellets upwards through the eye of the apple is saved, and a constant admission given to a supply of air without any labour. The hole now made is not, however, sufficiently open for an observer to gain by its means any knowledge of what is going on within, this is only to be obtained by cutting open a number of the apples, as they gradually advance towards ripening, the hole is, however, very easily seen, from its always having adhering to it, on the outside, an accumulation of the little grains which have been

thrust through. Having completed this work, the grub returns towards the centre of the apple, where he feeds at his ease. When within a few days of being full fed, he, for the first time, enters the core, through a round hole gnawed in the hard horny substance which always separates the pips from the pulp of the fruit; and the destroyer now finds himself in that spacious chamber, which codlins, in particular, always have in the centre. From this time he eats only the pips, never again tasting the more common pulp, which hitherto had satisfied his unsophisticated palate; now nothing less than the highly flavoured aromatic kernels will suit his tooth, and on these in a few days, he feasts in luxury. "Some how or other, the pips of an apple are connected with its growth, as the heart of an animal with its life; injure the heart an animal dies; injure the pips, an apple falls. Whether the fall of his house gives the tenant warning to quit, I cannot say, but quit he does, and that almost immediately. It leaves the core, crawls along his breathing and clearing out gallery, the mouth of which, before nearly closed, he now gnaws into a smooth round hole, which will permit him free passage, without hurting his fat, soft, round body; then out he comes, and for the first time in his life, finds himself in the open air. He now wanders about on the ground till he finds the stem of a tree: up this he climbs, and hides himself in some nice little crack in the bark. I should remark that the fall of the apple, the exit of the grub, and his wandering to this place of security, usually take place in the night time. By burning weeds in your garden, at this time of the year, June, you will effectually drive away this little moth. If you have trees the crop of which you value, make a smoking (mind not a blazing) fire under each. It will put you to some inconvenience if your garden be near your house, but the apples will repay you for that."

The apple paring is looked forward to by the inhabitants of the northern and middle states of the Federal Union, with as much anticipated pleasure as the harvest home used to be by the rural population of several districts of our own island: I say "used to be," because this is one of the many old English customs which are fast falling into disuse amongst ourselves. Apple paring is probably derived from an old German custom, and therefore not so exclusively American as many have supposed it: but since the sedate and calculating sons and daughters of brother Jonathan seldom enter with much spirit upon anything mirthful or merry making, and as I conceive that the mode of preserving apples here described might be advantageously introduced into some of our own apple districts, it may not be uninteresting to state the way in which it is managed.

Though the apple paring is resorted to as a "frolic," or an amusement, amongst the Americans, yet it is the means of getting a valuable piece of work performed at the same time that it passes for a recreation. These frolics for the most part take place in the early part of the autumn; for in order to ensure complete success, the rays of the sun should still possess considerable power. It is a general remark that the Americans are peculiarly fond of preserves and sweetmeats of every description, and it is a fact, that hardly a single meal passes without its accompaniment of "pies,"—"sweet sauce," and "preserve." Now in every part of those states before alluded to there is a great abundance of apples; hence the ingenuity of the people is laudably exerted in rendering them, as much as possible, subservient to the general purpose of house keeping. In all the forms they may be made to assume, the apples have first to be "pared" before they are subjected to the necessary process, so that apple paring becomes a matter of some consideration. Among the several preparations are included preserved apples, apple butter, apple sauce, and dried apples; the last of which being quite an article of trade amongst the Americans, it is principally for the preparation of *dried* apples that "the apple-parings" are held. Although America produces abundance of excellent apples, yet, owing to the great extremes of heat and cold, it has been found impossible to secure a supply adequate to the general demand throughout the season by any means that the horticulturist has yet discovered. In a great measure this has been remedied by adopting the plan of "drying" the apples, and as it is pursued upon an extensive scale, "the apple-paring," has hence become a matter of considerable importance. There are two methods of drying apples practised by the country people. In one case they are pared and cut into pieces (the cores being extracted) of half or three fourths of an inch in thickness, and then spread upon a platform, or temporary scaffoldings of boards, to dry in the sun. The scaffolding is erected a little sloping, with a southern aspect, on which the cut apples are spread to the depth of three or four inches, where they are kept for several days undergoing the necessary turnings and movings in order that every part may be exposed to the sun's influence. Should the weather be fine and settled, they remain upon the scaffolds during the night, their only protection being clean linen cloths thrown over them; but if there be a prospect of rain, then they have to be removed to some place of shelter. During the operation of drying the bulk of the mass greatly diminishes; so that in the various processes of paring, coring, and drying, seven or eight bushels become reduced to about one. When the apples have remained upon the platform until they are sufficiently dry, they are then removed to an upper room, and piled up in one of its angles; and if the drying process has been thoroughly accomplished, they will continue sound and good for a couple of years.

It is in preparing for the commencement of this system of drying that "The Apple Paring" takes

place; when all the neighbours have been duly "notified," it is expected they will attend at the time appointed. It is what the Americans call an "after supper frolic," but then it should be borne in mind that that repast usually takes place at five or six o'clock in the afternoon. Probably before seven o'clock the "parers" will have assembled, and without further ceremony they form themselves into small parties, each party surrounding a large basket for the reception of the cuttings, while the owner of the establishment takes care to supply his assistant labourers with plenty of the raw material. While fingers and knives are busily employed, the evening is occasionally enlivened with songs and cider, and not unfrequently with something of a more potent and exciting character. Although as has been previously remarked, they are after-supper frolics, yet five or six hours of diligent apple paring restores lost appetites, so that about midnight, tea and coffee, with their manifold accompaniments of Johnny-cakes, buck wheat cakes, dough-nuts, Yankee biscuits, pumpkin-pie, apple-sauce, &c. &c., are spread out in their usual profusion for the use and benefit of the whole party. After the parers have been replenished with this *second* supper many of the younger people brandish their knives anew; while the more sedate portion of performers betake themselves off to their respective homes.

A few years ago, two brothers very respectably connected, but eccentric young Irishmen, purchased a farm in the vicinity where I resided, and commenced keeping "bachelors hall" in a log cabin which the late Yankee owner had occupied. As there was a pretty good orchard upon the premises, they had far more apples than they knew what to do with, for they were entire strangers to the customs of the country. However, in the autumn, which was but two or three months subsequent to their entering upon their new possession, they collected thirty or forty bushels of the best of their apples, and stowed them away without any definite view as to the uses to which they might be applied. It seemed that their neighbours had been aware of the storing away the apples, and not altogether unmindful of the young men's welfare. After the close of a dull autumnal day, while the brothers were quietly seated by a blazing fire, that lit up their lonely habitation, they were somewhat startled by a gentle tapping at their door, on the opening of which, two strapping daughters of a Yankee settler, at some distance, stepped forward, rather unceremoniously, and "guessed they had come to pare apples." The young men were taken by surprise: but possessing the gallantry so natural to well bred Irishmen, invited the *ladies* to be seated, which invitation was unhesitatingly complied with. Presently, another and another "tapping" announced more strangers, and the arrival of three or four small parties in quick succession completely bewildered the two bachelors; and what *bothered* them not a little was the difficulty of making three old chairs, and a short rude form, (the whole of the seats their establishment afforded,) accommodate so large a party. The visitors were all young persons, and mostly females, and although appearances were certainly against them inasmuch as the visit was unsolicited, and a nocturnal one withall, a short explanation served, in a great measure, to silence suspicion. They informed the "young Irishers," that in consequence of their being strangers to the customs of the country, that they (the visitors) had arranged among themselves to give them the benefit of an apple-paring; and having learned that they (the bachelors) had housed a quantity of apples, an arrangement had been made by the people of the neighbourhood to meet that evening for the purpose of apple-paring. The young Irishmen acknowledged their obligations to those neighbours who seemed so much interested in their behalf, but as they were wholly ignorant of the method of drying apples, they would neither trouble neighbours nor themselves by entering upon the process. This piece of information seemed far from being satisfactory; but as seats were scarce, and as there appeared no prospect of a "frolic" at the expense of the "young Irishers," the parties were obliged to trudge homewards, consoling themselves under their present chagrin and disappointment with the prospect of meeting again on the following night at a regular Yankee apple paring to attend which they had all been duly "notified."

Arum maculatum.

ARUM MACULATUM.—THE COMMON ARUM.

Class XXI. MONŒCIA.—Order VII. POLYANDRIA.

Natural Order, AROIDEÆ.———THE ARUM TRIBE.

This is a well-known perennial plant, a native of many parts of Britain, generally growing under hedges, remarkable for its acrimony, and the singular structure of its fructification. "At the first approach of spring," says Sir James E. Smith, "the verdant shining leaves of *Arum* are seen shooting up abundantly wherever any brushwood protects them from the tread of men or cattle. In May, the very extraordinary flowers appear. In autumn, after both flowers and leaves have vanished, a spike of scarlet berries, on a simple stalk, is all that remains; and few persons are aware of the plant to which they owe their origin."

The root is pseudo-tuberous, about the size of a chesnut or larger, with numerous coronal capillary fibres, brown externally, and white and fleshy within. The leaves, which spring immediately from the corona are large, halberd-shaped, entire, smooth, of a dark green colour, frequently spotted, and supported on long-channelled footstalks, The flower-stem is a simple scape, obscurely channelled, and terminated by the spathe, inclosing the parts of fructification. The spathe is erect, pale green, sometimes spotted, very concave and pointed. The spadix is club-shaped, obtuse, of a deep purple colour; at its base are several roundish germens and a ring of sessile anthers; above each of these are placed rings of many roundish bodies, terminated by longish filaments; these Linnæus called the nectaries: the lowermost rings are believed to be abortive pistils, the upper abortive stamens. The fruit consists of several globular berries, of a bright scarlet colour when ripe, crowded on an oblong spike, each berry containing two or more seed.

The modern name *Arum* is a modification of the ancient appellation *Aron*, a word of Egyptian origin and supposed to have belonged to the species now called A. *Colocasia*, which present specific name is a corruption of the Arabic *qolqas*.

Qualities.—The root is nearly white, and free from smell. When recent, it is very acrimonious; so much so, that on our tasting a small piece, an insupportable sensation of burning and pricking was produced, which lasted several hours. Applied to the skin, it produces blisters: but its acrimony is lost by drying, which leaves the root a farinaceous substance, that in some countries has been converted into bread; and being saponaceous, is used in France under the name of *Cypress Powder*, as a cosmetic. Water and spirit abstract the acrid principle, but derive no virtue from it. It is entirely on the acrid properties that its medical virtues depend, and therefore the old formula *Pulvis Ari compositus* finds no longer a place in our dispensatories. The expressed juice reddens vegetable blues, and has been found to contain malate of lime. Starch has been also prepared from it. Vauquelin found malic acid, in the state of supermalate of lime, in Arum and several other plants.

In some countries, the tuberous roots of many of the Arums, particularly those of A. *Colocasia*, a native of Syria and Egypt, are dried and eaten by the inhabitants, either roasted or raw. In the West Indies, the leaves of some of the sorts, particularly that of the A. *esculentum*, are boiled and eaten as greens; hence the names of Indian-kale and esculent Arum, which have been given to this species. The roots of A. *sagittifolium* are also edible; but they are less generally cultivated. Mr. Loudon, in his valuable *Encyclopædia of Gardening*, informs us, that in the Isle of Portland, where the plant is particularly abundant, the common people gather the roots of our spotted Arum, and esteem it as an article of food; and after steeping it in water, washing and drying, the farinaceous powder procured is sent to London, where it is sold as Portland sago.

For medical use, Dr. Lewis recommends the roots to be dug up just as the leaves are decaying; and by being put into sand, in a cellar, they may be preserved the greater part of the year.

Poisonous Effects.—Warzel, a German practitioner, has administered the fresh root of Arum to dogs: they died at the end of from twenty-four to thirty-six hours, without any other symptom than dejection, and the digestive canal was found somewhat inflamed.

Buillard relates the following case: "Three woodman's children ate of the leaves of this plant; they were seized with horrible convulsions. Assistance was procured for them too late; It was impossible to make the two youngest swallow any thing; they were bled without success; they died at the expiration of twelve days, another at the end of sixteen. The other child was still able to swallow, although with considerable pain, because its tongue was so swelled that it filled the whole cavity of the mouth; but deglutition became free after being bled. The child was made to drink milk, warm water, and especially an

abundance of olive oil. A diarrhœa came on, which saved the child; it was pretty well restored in a short space of time, but always preserved a very great degree of leanness."

Treament.—Our first object should be, to evacuate the stomach by the syringe or by emetics of sulphate of zinc or of copper; after which the bowels should be relaxed by the sulphate of magnesia dissolved in almond emulsion, which may be copiously partaken of to allay thirst, and sheath the mucus membrane of the bowels from their acrid contents. It is very evident, however, from Bulliard's statement, that the principal mischief existed in the throat and tongue: and under such alarming circumstances, we should have applied leeches to the former, or scarified and compressed the latter. Ice might likewise be applied to the same parts. By adopting these active means, deglutition would most probably be restored, and time afforded for a judicious management of the case.

Medical Properties and Uses.—Arum is a very powerful stimulant, and when taken internally, in its recent state, it warms the stomach, excites the activity of the digestive organs, promotes perspiration, and exerts an action on most of the secretory organs. It has, therefore, been given with success, in cachectic, chlorotic, and rheumatic complaints, and in various other affections of torpid and phlegmatic constitutions. Bergius, whose authority is not to be despised, speaks of its success in certain kinds of headache; and intermittents are said to have yielded to it. If the root be given in powder, great care should be taken that it be young, and newly dried, when it may be used in the dose of a scruple, or more, twice a-day; but in rheumatism, and other disorders requiring the full effect of the medicine, the root should be given in a recent state; and to cover the insupportable pungency it discovers on the tongue, Dr. Lewis advises us to administer it in the form of emulsion, with gum arabic and spermaceti, increasing the dose from ten grains to upwards of a scruple, three or four times a day. In this way it generally occasions a sensation of warmth about the stomach, and afterwards in the remoter parts; promotes perspiration, and frequently produces plentiful sweats. The root answers well as a cataplasm for the feet, in deliriums, as garlic does. The London Pharmacopœia of 1788 orders a conserve, in the proportion of half-a-pound of the fresh root to a pound-and-half of double-refined sugar, beat together in a mortar. The dose is a drachm for adults, and it is a good form for the exhibition of the medicine. But the difficulty of administering the Arum in a uniform manner, prevents it from being often used.

Dose.—The fresh root may be given in doses of fifteen or twenty grains three times a-day.

"All these plants" says Professor Burnett of the Callaceæ, a tribe which includes Arum, "contain an acrid principle, which renders many of them highly poisonous. It is, however, most powerful in its fresh state, and may be removed by drying or boiling. Hence the roots of the common *wake-robin*, which are grumous and full of farina, although acrid when fresh, are manufactured into a bland and very nutritious food, sold in this town under the name of Portland sago; being so called from the Island of Portland, where the plant grows in abundance, and the manufacture is principally carried on. The roots of several of the *Caladia* are similarly used, although their sap is in general acrid, and that of *Caladium seguinum* so venomous, that, when a small piece of the plant is chewed, it paralyzes the muscles of the mouth and fauces, causes the tongue to swell, and deprives the sufferer of the faculty of speech; the sap of *Caladium arborescens*, although less powerful, is still so caustic, that occasionally (says Merat) the lips of the negroes are wetted with it, as a punishment for slight misdemeanours."

Of the Calla Æthiopica, a species of Arum, the author of the Flora Domestica speaks as follows:—The Æthiopian species of this flower, commonly called the horn-flower, is the only one deserving of a place in the garden. Many Arums of the botanists are very useful as medicine, food, &c. The leaves of the esculent Arum serve the inhabitants of the South-Sea islands for plates and dishes, and in some parts of Brazil, this is cultivated for the sake of its edible roots, which are called Mangaranitos; but they are very little ornamental; and the few which are handsome have so powerful and disagreeable a scent as deservedly to banish them from most of our gardens.

This species, however, is exquisitely beautiful, and not only inoffensive in odour, but even agreeable. The leaves are large and glossy. It has a large white flower, folded with a careless elegance into the shape of a cup or bell, with a bright golden rod (called the spadix) in the centre. Placed by the side of the dark red peony, the effect is truly splendid: the contrast makes both doubly magnificent. A heathen might have supposed these fine flowers created on purpose to grace the bosom of the stately Juno. By the side of the rose, too, or the large double tulip, or some of the finer kinds of marygold, it has a noble appearance; and no flower is more deserving of care in the cultivation.

The *Arum maculatum*, popularly called Cuckoo Pint, or Wake Robin, is the emblem of *Ardour*.

Fraxinus excelsior

FRAXINUS EXCELSIOR.—THE ASH.

Class XXIII. POLYGAMIA.——Order I. DIŒCIA.

Natural Order, OLEACEÆ.——THE OLIVE TRIBE.

Fraxinus Excelsior. Leaflets almost sessile, lanceolate-oblong, acuminate, serrated, cuneated at the base; flowers naked; samara obliquely emarginate at the apex. Native of Europe. The leaves have generally 5 pairs of leaflets, from 4 to 6. The flowers are produced in loose spikes from the sides of the branches. There are not only female flowers, the hermaphrodite ones, but also male ones.

The Ash, in German and Dutch, is called *Esche* or *Asche;* in Danish and Swedish, *Ask;* in French, *Le Frêne;* in Italian, *Frassino;* in Spanish, *Fresno;* in Portuguese, *Freixo;* in Russian, *Jas*, *Jasen*, or *Jassen*. The English name is from the Saxon *Æsa*. Ray says it has its name from the colour of the bark. Its usual time of flowering is March and April; of leafing, from April 22nd to May 15th. The timber of the ash is next in value to the oak, and in some places equal to it: it is hard and tough, and of excellent use to the coachmaker, wheelwright, and cartwright, for ploughs, axle-trees, fellies, harrows, and many other implements of husbandry; for ladders, oars, blocks for pulleys, &c. Anciently it was in great request for spears. Being not apt to split and scale, it is excellent for tenons and mortises; also for the cooper, turner, and thatcher. Nothing is like it for palisade-hedges, hop-yards, poles and spars, handles and stocks for tools, &c. When curiously veined, the cabinet-makers use it, and call it green Ebony. Of all timber it is the sweetest fuel. If a wood of ash-trees be managed well, it will turn greatly to the advantage of its owner; the underwood will be fit to cut every seven or eight years for hoops, or every 14 years for hop-poles, &c. and still there will be a stock preserved for timber. The best season for felling the ash is from November to February; but for lopping pollards, the spring is preferable for all soft woods. The ashes of the wood afford a very good potash. The bark is used for tanning cat-skin and nets. In the north of Lancashire they lop the ash, to feed the cattle, in autumn, when the grass is upon the decline. The leaves have been gathered to mix with tea. An infusion of them is an aperient; and a decoction of 2 drachms of the bark, or 6 of the leaves, has been used in the cure of agues. If cows eat the leaves or shoots, the butter from their milk is said to be rank; but this is doubtful, for there is no taste in ash-leaves to countenance the assertion, and this is the next tree, after the elm, which the Romans recommended for fodder. The ash is, however, a very improper tree for hedge rows, and the borders of arable land; the drip of it is very unfavourable to all other vegetable productions; it exhausts the soil much, and the roots spread widely near the surface, so that it injures the hedge, and impoverishes the crop sown near it.

Though the ash be a handsome tree, it should not by any means be planted for protection or ornament, because the leaves come out late, and fall early. The fertile trees also generally exhaust themselves so much in bearing keys or fruit, that their foliage is scanty, and their appearance unsightly. The trees, however, which bear male flowers only, have a full and verdant foliage, and make a handsome figure, though late in the season. It is well calculated for standards and clumps, in large parks and plantations, and for groves and woods. It will grow in very barren soils, and in the bleakest and most exposed situations. It is so hardy as to endure the sea winds, and may therefore be planted on the coast, where few trees will prosper. If planted by ditch sides, or in low, boggy meadows, the roots act as under-drains, and render the ground about them firm and hard; the timber, however, is in this case of little value. It was natural that our remote ancestors, when the island was overrun with wood, should value trees rather for their fruit than their timber; it is no wonder, then, that by the laws of Howel Dda, the price of an oak or a beech should be 120 pence, while the ash, because it furnished no food for swine, was valued only at fourpence. The Edda or Woden, however, holds the ash in the highest veneration; and man is described as being formed from it. Hesiod, in like manner, deduces his brazen race of men from the ash; and in his Theogony has nymphs of the name of Μελιαι. It is probably owing to the remains of Gothic veneration for this tree, that the country people, in the south-east part of the kingdom, split young ashes, and pass their distempered children through the chasm, in hopes of a cure. They have also a superstitious custom of boring a hole in an ash, and fastening in a shrew mouse; a few strokes with a branch of this tree are then accounted a sovereign remedy against cramps and lameness in cattle, which are ignorantly supposed to proceed from

this harmless animal. In many parts of the highlands of Scotland, at the birth of a child, the nurse puts one end of a green stick of this tree into the fire, and, while it is burning, receives into a spoon the sap or juice, which oozes out at the other end, and administers this as the first spoonful of liquor to the new born babe.

The facility with which the ash is propagated, and adapts itself to any soil or situation, even the worst; the quickness of its growth; and the general demand for the timber, in every part of the country, for a variety of rural and economical purposes; recommend this tree very much to the planter.

The Ash, says a writer in the Library of Entertaining Knowledge, is by way of eminence, called "The Husbandman's Tree," nothing being equal to it for agricultural implements, and for all sorts of poles, ladders, long handles, and other purposes which require strength and elasticity, combined with comparative lightness. At all ages the growth of the ash is of value; the thinnings of your plantations, and the suckers that spring up from the roots of grown trees, or from the stools of trees that have been cut down, are excellent for hoops, hop-poles, and every other purpose where clean, light, and strong rods are wanted at small expense. The leaves, and even the twigs, are eaten by cattle with great avidity; the bark is useful in tanning; and the wood yields, when burnt a considerable quantity of potash.

Gilpin, in his work on Forest Scenery, calls the Oak the Hercules of the Forest; and the Ash the Venus. The chief characteristic of the one, is strength; of the other, elegance. The Ash carries its principal stem higher than the Oak; its whole appearance is that of lightness, and the looseness of the leaves corresponds with the lightness of the spray. Its bloom is one of the most beautiful appearances of vegetation. The Ash, however, drops its leaves very early; and instead of contributing its tint to the many coloured foliage of the autumnal woods, it presents wide blanks of desolated boughs. In old age, too, it loses that grandeur and beauty which the Oak preserves.

"If the oak," says Professor Burnett, "is the noblest, the ash is the most elegant of our native trees; if the one is the king, the other is the queen of our forests. Its graceful port and the light airiness of its foliage are proverbial; and well was it termed by Virgil "*Pulcherrima sylvis.*" The ash is not only beautiful but useful; it yields a valuable timber, much in request by wheelwrights, and for the manufacture of instruments for husbandry. Its bark is bitter, and has been used as a febrifuge; and its leaves, which have a similar flavor, have been frequently employed to adulterate tea. Willich, indeed, says that, as a tonic, they are superior to the China drug. They are also said to be decidedly cathartic, but less so than those of senna. Pliny tells us, that the ash is obnoxious to serpents; and branches are often hung about children's beds to keep off the gnats."

For the following quotation we are indebted to that ingenious little work "The Sentiment of Flowers:"

There is a singular allegory in the Edda, which states that the gods hold their court under the shade of a miraculous ash, whose extensive branches shadow the whole surface of the earth; the top of the tree touches the heavens, and its roots descend to the regions of Pluto. An eagle constantly reposes on the tree, to observe every thing, and a squirrel continually ascends and descends to make report. Beneath its roots flow two fountains. In the one wisdom is concealed, and in the other is found the knowledge of things to come. Three virgins are entrusted with the charge of this sacred tree, who ever remain under its branches to refresh the tree with these salutary waters, which, on falling back on the earth, form a dew that produces honey. This effect has been ingeniously compared to the results of inventive science.

The Ash is the emblem of *grandeur.*

Leigh Hunt says of the Ash, in his "Indicator:" Infinite are the spears with which it has supplied the warlike, the sticks it has put into the hands of a less sanguinary courage, the poles it has furnished for hops, vines, &c., and the arbours which it has run up over lovers. The Greek name for it was Melia, or the Honied; from a juice or manna which it drops, and which has been much used in medicine and dyeing. There are, or were about forty years back, when Count Ginanni wrote his History of the Ravenna Pine Forest, large ash woods in Tuscany, which used to be tapped for those purposes. Virgil calls it the handsomest tree in the forest; Chaucer "the hardie ashe; and Spenser, with an eulogy exclusively perfect, "the ash for nothing ill."

Ornus europæa?

FRAXINUS ORNUS, vel ORNUS EUROPÆA.—MANNA, OR FLOWERING ASH.

Class XXIII. POLYGAMIA.—Order II. DIŒCIA.

Natural Order, OLEACEÆ.——THE OLIVE TRIBE.

Fig. (*a*) A flower separate, to shew its four discrete petals and two stamens. Fig. (*b*) The samaroid fruit.

This tree, which greatly resembles our common ash, is a native of the warmest parts of Europe. It grows abundantly in Calabria, Sicily, and on the highest and most rocky mountains of Greece, and is one of the most elegant trees that adorn our lawns and pleasure-grounds; flowering in May and June.

The *Ornus Europæa* is a low tree, very much branched, and covered with a smooth grey bark. The leaves, which are smaller than those of the common ash, stand upon longish, channelled footstalks; are opposite, pinnate, and composed of several pairs of leaflets, with a terminal one; the leaflets are opposite, about an inch and a half long, and three-fourths broad, of an oblong shape, pointed at each end, unequally serrated, smooth, and of a bright green colour. The flowers are produced in loose panicles at the extremities of the branches, flowerstalks are suprade-compound, and scarcely the length of the leaves. The segments of the calyx are ovate; the corolla consists of four oblong, linear, pointed petals; the filaments are two, spreading, and supporting large yellow incumbent anthers; the germen is oval, with a very short style, and a notched stigma. The capsules are pendulous and compressed, and usually contain a single lanceolate cylindrical dark brown seed.

Manna is yielded by trees of different families, for although we are principally indebted to four species of ash, F. *ornus;* F. *rotundifolia;* F. *excelsior;* and F. *parviflora;* the larch, fir, orange, walnut, willow, mulberry, and the oak, also produce it. At Briançon, in France, manna is said to be collected from all sorts of shrubs; and the inhabitants observe that such summers as produce it in the greatest quantities, are very fatal to the plants. Their walnut-trees produce annually a considerable quantity; but if they happen to yield more than ordinary, they usually perish the following winter. From this it appears evident that manna is the extravasated juice of trees, and that they cannot afford to lose it; and what confirms this idea, is their secreting so much more when the summers are hot. The ancients were accustomed to find it on different species of trees; and therefore inferred that it was something wholly foreign to the tree: an error very easily embraced by those who were not aware that the nutritive juices of trees are nearly, if not wholly, the same.

"The Manna tree, *(Ornus Europæa,* vel Fraxinus *Ornus,)*" says Prof. Cirillo,* "is common not only in Calabria and Sicily, but also on the famous mountain Garganus, situated near the old town of Sypontum, upon the Adriatic; and is mentioned even by Horace as an inhabitant of that mountain:—

Aut aquilonibus
Querceta Gargani laborant,
Et foliis viduantur Orni.

"In all the woods near Naples the manna tree is to be found very often; but for want of cultivation it never produces any manna, and is rather a shrub than a tree. The method by which the manna is obtained from the Ornus, though very simple, has been yet very much misunderstood by all those who have travelled in the kingdom of Naples; and among other things they seem to agree that the best and purest manna is obtained from the leaves of the tree; but this, I believe, is an opinion taken from the ancients, and received as an incontestable observation, without consulting nature. I never saw such a kind, and all those who are employed in the gathering of the manna know of none that comes from the leaves. The manna is generally of two kinds; not on account of the intrinsic quality of them being different, but only because they are got in a different manner. In order to obtain the manna, those who have the management of the woods of the Orni, in the months of July and August, when the weather is very dry and warm, make an oblong incision, and take a piece off from the bark of the tree about three inches in length, and two in breadth: they leave the wound open, and by degrees the manna runs out, and is almost suddenly thickened to its proper consistence, and is found adhering to the bark of the trees. This manna,

* Phil. Trans. vol. 63, p. 234.

which is collected in baskets, and goes under the name of *manna grassa*, is put in a dry place, because moisture and a damp atmosphere will soon dissolve it again.

"This first kind is often in large irregular pieces of a brownish colour, and frequently is full of dust and other impurities. But when the people want to have a very fine manna, they apply to the incision of the bark thin straw, or bits of shrubs, so that the manna, in coming out, runs upon those bodies, and is collected in a sort of regular tubes, which give it the name of *manna in cannoli*, that is, manna in tubes; this second kind is more esteemed, and always preferred to the other, because it is free and clear. There is, indeed, a third kind of manna, which is not commonly to be met with, and which I saw after I left Calabria; it is very white, like sugar; but it is rather for curiosity than for use. The two sorts of manna already mentioned undergo no kind of preparation whatever before they are exported; sometimes they are finer, particularly the *manna grassa*, and sometimes very dirty and full of impurities; but the Neapolitans have no interest in adulterating manna, because they always have a great deal more than they export; and if manna is kept in magazines, it receives often very great hurt by the southern winds, so common in our part of the world. When the summer is rainy, the manna is always scarce and bad."

Manna likwise exudes spontaneously and concretes into granules; it is known in the markets by the name of manna in tear.

The manna referred to by the ancient Greek writers is asserted, by Dr. Fothergill, to be portions of olibanum, broken off in the carriage of larger pieces, which by some is still called "manna of frankincense." The Arabians are supposed to be the first who brought manna into medicinal use.

Qualities and Chemical Properties.—Pure manna is very light, and appears to consist of a congeries of fine capillary crystals. Its taste is sweet, and it leaves a nauseous impression on the tongue. When dissolved in water, it may be obtained again unaltered by a gentle evaporation. Alcohol dissolves it when assisted by heat; and the solution, when set aside, gradually deposits about $\frac{5}{8}$ths of the manna, in a state of a fine white light spongy crystalline mass, bearing some resemblance to camphor. This depost has an agreeable sweet taste, and instantly melts upon the tongue like snow in warm water. This may be considered as pure manna. It differs from sugar in the nature of its crystals, and in its more rapid solubility. By evaporating the solution, and setting it aside repeatedly, about $\frac{2}{8}$ths more of the manna is deposited, but not so fine in colour, or taste, as the first precipitate. By evaporation to dryness, the remaining $\frac{1}{8}$th is obtained in the state of a thick extract, which cannot be easily reduced to dryness. This may be considered as consisting chiefly of foreign bodies, to which manna owes its nauseous taste. Manna differs from common sugar in several remarkable particulars. It dissolves very readily and abundantly in alcohol, and crystallizes on cooling. When digested in nitric acid it yields both oxalic and saclactic acids; whereas sugar only yields oxalic acid. It does not ferment like sugar, and of course does not seem capable of furnishing alcohol.

The common manna of the shops, according to the experiments of Fourcroy and Vauquelin, consists of four different ingredients; 1. Pure manna, which constitutes at least $\frac{1}{4}$ths of the whole. 2. A little common sugar, which makes it fermentable to a small extent. 3. A yellow matter, with a nauseous odour, to which the purgative quality of manna seems owing. 4. A little mucilage convertible into saclactic acid. This last ingredient, however, seems to be hypothetical.

Several substances seem to be convertible into manna. The juice of the common onion yields it, and it has been discovered in the juice of the melon, but not till it has fermented.

Manna appears also to be formed and deposited by insects.

Medical Properties and Uses.—The medicinal properties of manna are those of a mild cathartic, for which purpose it was formerly much used in practice. As, however, from one to two ounces of this medicine scarcely produce any effect on adults, it is now seldom employed alone; but combined with senna, neutral salts, and other aperients, is often used to cover their taste. It is an innocent remedy in the hands of mothers, who frequently give it to their children in doses from one drachm to half an ounce dissolved in water; but, though mild in its operation, it is apt to produce flatulence and griping.

Off. Prep.—Confectio sennæ. *L. E. D.*

Syrupus sennæ. *D.*

Amyris Gileadensis

AMYRIS GILEADENSIS.—BALSAM OF GILEAD TREE.

CLASS VIII. OCTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, BURSERACEÆ.

THIS species of amyris, which affords the balsam of Gilead or Mecca, the most precious of the balsams, is a native of Arabia, and was found by Forskal, and also by Niebuhr, growing spontaneously in the mountains of the province of Yemen. The balsam-tree, though not a native of Judea, was cultivated with great perfection many centuries before Christ in the gardens near Jericho, on the banks of the Jordan; and it was from Gilead in Judea, whence the merchants brought the resinous product to Egypt, that it derived its appellation of *Balsam of Gilead.* Since the conquest of Palestine by the Romans, Mr. Buckingham says the balsam-tree has entirely disappeared, and that not one is now to be found; but Burckhardt asserts, that it is still partially cultivated in the gardens near the lake of Tiberias. Mr. Bruce informs us that it is a native of Abyssinia, growing among the myrrh-trees behind Azab, all along the coasts to the straits of Babelmandel.

It is an evergreen shrub or tree, seldom exceeding fourteen feet in height, having a flat top, like trees that are exposed to snow blasts or sea air, which gives it a stunted appearance. The trunk is about eight or ten inches in diameter, with many spreading, crooked, purplish branches, having protuberant buds loaded with aromatic resin. The wood is light and open, incapable of receiving a polish, resinous, externally of a reddish colour, and covered with a smooth ash-coloured bark. The leaves are thinly scattered, small, composed of one or two pairs of opposite leaflets, with an odd one; the leaflets are sessile, obovate, entire, veined, smooth, and of a bright green colour. The flowers proceed from the buds by threes; they are small, white, and furnished with a minute slightly bifid bractea, sheathing the base of the pedicle. The calyx is permanent, and divided into four spreading segments; the petals are four, oblong, concave, spreading: the filaments are eight, tapering, erect, bearing erect anthers: the germen is superior, ovate, with a thick style, the length of the filaments, terminated by a quadrangular stigma. The fruit is of a reddish-brown colour, oval, very slightly compressed, pointed, four-valved, and containing a somewhat pointed, smooth nut, flattened on one side, and marked with a longitudinal furrow.

Balm or balsam, is a term commonly applied to resinous substances, which exudes spontaneously from certain plants. It serves very properly to express the Hebrew word צרי, which in the Septuagint is rendered ρητινη, and by the ancients is indiscriminately interpreted *resin.* But Kimchi, and other moderns, have understood the Hebrew noun to designate that particular species formerly called "*balsamum*" or "*opobalsamum,*" and now distinguished by the name of *balsamum Judaicum,* or *balsam of Gilead:* celebrated by the ancients for its costliness, its medical virtues, and for being the product of Judea only, and of a particular spot there; which Josephus attributes to the neighbourhood of Jericho, but says that the tree was, according to tradition, originally brought by the Queen of Sheba to King Solomon from Arabia Felix, the country that now principally supplies the demand for that precious drug.

The great value set upon this drug in the East is traced to the earliest ages. The Ishmaelites, or Arabian carriers and merchants, trafficking with the Arabian commodities into Egypt, brought with them צרי as a part of their cargo. (Genesis xxxvi. 25; xliii. 11.) Strabo alone, of all the ancients, has given us the account of the place of its origin. "In that most happy land of the Sabæans," says he, "grows the frankincense; and in the coast that is about Saba, the balsam also." We need not doubt that it was transplanted early into Arabia, that is, into the south parts of Arabia Felix immediately fronting Azab, where it is indigenous. The first plantation, says he, that succeeded, seems to have been at Petra, the ancient metropolis of Arabia, now called Beder, or Beder Humhin.

Notwithstanding the positive authority of Josephus, referred to above, and the great probability that attends it, it is observed by Bruce that his account cannot be put into competition with that of the Scriptures, which 1730 years before Christ, and 1000 before the Queen of Sheba, says, "A company of Ishmaelites came from Gilead with their camels, bearing spicery, and balm, and myrrh, going to carry it down into Egypt;" (Gen. xxxvii. 25;) from which it is evident that it had been transplanted into Judea, flourished there, and had become an article of commerce in Gilead long before the period he mentions. Now the spicery or possession was entirely purchased by the Ishmaelites at the mouth of the Red Sea, the market for Indian goods; and at the same place they must have brought the myrrh, which does not, nor did grow anywhere else than in Sabo or Azabo, east of Cape Gardefan, where the ports of India were, from whence it was dispersed all over the world.

Josephus, speaking of the vale of Jericho, says, "Now here is the most fruitful country in Judea, which bears a vast number of palm-trees, *besides the balsam-tree*, whose sprouts they cut with sharp stones, and at the incisions they gather the juice, which drops down like tears." The balsam produced by these trees was of such consequence as to be noticed by all the writers who treated of Judea. Pliny says, "This tree, which was peculiar to Juris, or the Vale of Jericho, was more like a vine than a myrtle." Vespasian and Titus carried, each of them, one to Rome, as rarities; and Pompey boasted of bearing them in triumph. When Alexander the Great was in Judea, a spoonful of the balsam was all that could be collected on a summer's day, and in the most plentiful year, the great royal park for these trees yielded only six gallons, and the smaller one only one gallon. It was consequently so dear, that it sold for double its weight in silver. But from the great demand for it, adulteration soon followed, and a spurious sort was substituted. Justin makes this tree the source of all the national wealth. Speaking of the balsam, he says, "The wealth of the Jewish nation arose from the opobalsamum, which doth only grow in those countries; for it is a valley like a garden, which is surrounded by hills, and inclosed, as it were, with a wall. It is called Jericho. In the valley is a wood, admirable for its fruitfulness, as for its delightfulness, being intermingled with palms and opobalsamum trees. The latter have a resemblance to firs, but are lower, and are planted and husbanded like the vine; and on a set season of the year sweat balsam." In the estimate of the revenues which Cleopatra derived from the regions round about Jericho, which had been given her by Antony, and which Herod afterwards farmed of her, it is said, "this country bears that balsam which is the most precious drug that is there and grows there only." The balsam is mentioned in the Scriptures, under the name of "Balm of Gilead." (Jer. viii. 22; xlvi. 11; li. 8.)

Qualities and Chemical Properties.—Balsam of Gilead, or of Mecca, says Mr. Milburn, is a resinous juice that distils from a tree, or shrub, growing between Mecca and Medina. The tree is scarce; the best sort is said to exude naturally, but the inferior kinds are extracted by boiling the branches. It is at first turbid and white, of a strong pungent, agreeable aromatic smell, and slightly bitter acrid taste; upon being kept, it becomes thin, limpid, of a greenish hue, then of a golden yellow colour, and, at length, like honey. The *opobalsamum* of the ancients, was the green liquor found in the kernel of the fruit; the *carpobalsamum*, the most in esteem, was expressed from the ripe fruit, and *xylobalsamum* from the small twigs after decoction. It is extremely liable to adulteration, and from its high price and scarcity, we believe that a single ounce of the genuine Balsam of Gilead is not to be obtained in this country, or even in Europe. To spread when dropped into water, all over the surface, to form a thin iridescent pellicle, so tenacious that it may be taken up entire with the point of a needle, were formerly infallible criteria of the genuine article. It has, however, been observed, that other balsams, when of a certain degree of consistence, exhibit these phenomena equally with the Balsam of Gilead. Mr. Bruce says, "if the balsam be dropped on a woollen cloth, in a pure state, it may be washed out completely and readily with simple water. Dried Canada balsam, or the resinous juice which exudes from the Pinus *balsamea*, is at the present day generally substituted for the real, and if it does not possess its odour, it is equally efficacious."

Medical Properties and Uses.—This balsam is highly prized among Eastern nations, particularly by the Turks and Arabs, both as a medicine and odoriferous unguent and cosmetic. It has been highly extolled as a powerful antiseptic, vulnerary, and preventive of the plague. In its medicinal properties it agrees with the balsams of Tolu, Peru, and others of the same class; but its great scarcity has prevented it from coming into use among European practitioners.

In the Language of Flowers, Balm of Gilead denotes Healing.

Fagus sylvatica?

FAGUS SYLVATICA.—THE COMMON BEECH.

CLASS XXI. MONŒCIA.—ORDER XIII. POLYANDRIA.

NATURAL ORDER, CUPULIFERÆ.—THE OAK TRIBE.

THE beech is a handsome umbrageous tree, combining magnificence with beauty; and is as Mathews observes, at once the Hercules and Adonis of our sylva. It has a smooth thin bark, which is white when fully exposed to the air. The leaves are shining, thin, changing to a brown or russet colour in autumn; and on soil somewhat moist, or in wet autumns, remaining on the trees throughout the winter. On young trees, and on trees planted in hedgerows and pruned, the leaves are more certain of remaining on during the winter, than on large, old or detached trees. The head of the beech is, in general so dense, that plants do not readily grow under it, which is also partly owing to the leaves requiring a longer time to decay after they fall. The branches of the beech, whether in old or young trees, generally take an upright direction, and form acute angles with the stem; though in old trees, the lower branches are often horizontal, and sometimes bent down in the middle; and curving upwards at the extremity. The branches are very numerous, and the smaller shoots much divided; but the direction both of the branches and spray is always more or less straight, as compared with that of the branches or spray of the oak, the ash and some other trees. The roots do not descend deeply into the soil, but extend to a considerable distance close under the surface. The rootlets and fibres are not nearly so numerous as in the ash and elm. The barren flowers are in round, stalked drooping heads, or catkins of a light brown colour, and 3 or 4 in each head The fertile ones are placed above them on the branch and are solitary, and on stouter stalks than the male catkins. The calyx of the fruit is 4-cleft, clothed with simple pliant prickles. The stigmas are 9 in each flower; spreading, acute, and downy. Nuts 2, with 3 equal very sharp angles crowned with the inner calyx. The flowers appear in May, and the fruit ripens in October. The fruit when ripe opens at the upper extremity, in four divisions, and, after a short time, the nuts frequently drop out, leaving the calyx or cup which contained them attached to the tree. The nut contains a white oleaginous substance, agreeable to eat. The seedlings of this tree, Sir J. E. Smith observes, when newly sprung up, with their pale cotyledons, look not unlike some kinds of fungus. Under favourable circumstances, they will attain a height of 10 feet in five years, and 20 feet or 25 feet in 10 years. The height of the tree, when full grown, and in a situation where it is allowed to spread, may be considered as from 60 feet to 80 feet. The life of the beech tree in its native habitat in Germany according to Willdenow, extends to 200 years and upwards. The oldest beech tree in England is probably that in Windsor Forest, which is supposed to have been in existence before the Norman Conquest. In general the tree attains its full growth in England in 60 or 80 years, when it is fit to be cut down for timber purposes; and on good soils, it is more than doubtful whether it will live much longer than 100 or 150 years. When the tree is cut, the wound heals quickly over, so as to leave but very slight seams, and when the branches are cut off close to the trunk, it is not liable to throw out fresh shoots.

The finest beech trees in Britain are said to grow in Hampshire, and there is a curious legend respecting those in the Forest of St. Leonard, in that county. This forest, which was the abode of St. Leonard, abounds in noble beech trees; and the saint was particularly fond of reposing under their shade; but when he did so, he was annoyed during the day by vipers, and at night by the singing of nightingales. Accordingly he prayed that they might be removed; and such was the efficacy of his prayers, that, since his time, in that forest,

> "The viper has ne'er been known to sting
> Or the nightingale e'er to sing."

Virgil frequently mentions the beech, as in the well known lines:—

> "Tityre, tu, patulæ recubans sub tegmine fagi,
> Sylvestrem tenui musam meditaris avena."
>
> "Beneath the shade which beechen boughs diffuse,
> You Tityrus, entertain your sylvan muse.——*Dryden.*

And the following:—

"Or shall I rather the sad verse repeat,
Which on the beechen bark I lately writ?"

In the third Eclogue, Virgil makes his shepherds boast of their beechen bowls: Tibullus says,—

———"No wars did men molest,
When only beechen bowls were in request."

The branches of the beech, particularly in woods, being much covered, and having a smooth bark, are liable to cross and grow into each other, and, as it were, inosculate; and hence, according to some, it was this tree that gave the first idea of grafting.

The beech was known to both the Greeks and Romans. The ancients seem to have set considerable value on the beech mast as an article of food. Pliny speaks of the mast (*glandes* of the beech as being the sweetest of all *(dulcissima omnium)* and states that at the siege of Chios, the besieged lived for some time entirely on beech mast. Vessels made of beech wood were used in the Roman sacrifices, and the nut was in repute as a medicine.

The beech is chiefly valued for its wood, but it is not considered by foresters in general as a timber tree, for it is neither strong nor durable: it is chiefly employed, from the closeness of its grain, for tool handles, and in machinery. Beech-nuts abound in oil, and a patent some years ago was taken out for its extraction, but it was found more profitable to fatten swine upon them, than to sell them to the patentee. Gerard says, "*Pliny* also makes mention of this tree, but under the name of *Ostrya*, (if so be instead of Ostrya we must not reade Oxya.) It brings forth (saith he, meaning Greece,) the tree Ostrya, growing alone among watery stones, like to the ash tree in barke and boughes, with leaues like those of the Peare tree, but somwhat longer and thicker, and with wrinkled cuts which run quite through, with a seed like in colour to a chestnut, and not to barley: the wood is hard and firme, which being brought into the house, there follows miserable deaths, as it is reported, and therefore it is to be forborn, and not used as fire wood, if Pliny's copies be not corrupted.

The leaves of the beech are very profitably applied to hot swellings, blisters, and excoriations: and being chewed, they are good for chapped lips, and paine of the gums."

In the language of Flowers, Beech says Prosperity.

The changes which take place in the face of nature during this month, says Dr. Aikin of December, are little more than so many advances in the progress towards universal gloom and desolation.

No mark of vegetable life is seen,
No bird to bird repeats his tuneful call,
Save the dark leaves of some rude evergreen,
Save the lone red-breast on the moss-grown wall.———*Scott.*

The day now rapidly decreases; the weather becomes foul and cold; and, as Shakespeare expresses it,

The rain and wind beat dark December.

In this climate, however, no great and continued severity of cold usually takes place before the close of the month.

The festival of Christmas occurs very seasonably to cheer this comfortless period of the year. Great preparations are made for it in the country, and plenty of rustic dainties are provided for its celebration according to the rites of ancient hospitality. Thus the old year steals away scarcely marked, and unlamented; and a new one begins with lengthening days and brighter skies, inspiring fresh hopes and pleasing expectations.

Mysterious round! what skill, what force divine,
Deep felt, in these appear! a simple train,
Yet so delightful mix'd, with such kind art,
Such beauty and beneficence combin'd;
Shade, unperceiv'd, so softening into shade;
And all so forming an harmonious whole;
That, as they still succeed, they ravish still.

Thomson

Begonia Nitida.

BEGONIA NITIDA.—SHINING BEGONIA.

Class XXI. MONŒCIA.——Order I. POLYANDRIA.

Natural Order, BEGONIACEÆ.*

Character of the genus, Begonia. Flower monœcious. Staminiferous flowers with the perigone of four segments, the folioles roundish, the two exterior large. Stamens numerous; filaments very short, free or united at the base, anthers extrose, two-celled, cells linear, distinct, adherent to the obtuse margin of the continuous connectivum, dehiscing longitudinally. Pistilliferous flowers having the tube of the perigone three-winged, united to the ovary, the limb superior, of from four to nine segments, the persistent lobes imbricated in several rows. Ovary inferior, three-celled. Ovules numerous, anatropous, attached to placentæ, formed of two plates, springing from the central angles of the cells. Styles three, two-cleft; stigmata thick, flexuose or capitate. Capsule triangular, from three membranaceous wings, three-celled, splitting by a loculicidal dehiscence into three valves. Seeds numerous, small, striated. Embryo orthotropous, in the axis of a fleshy albumen.

Description of the species, Begonia Nitida. Stem inclined to be woody at the lower part, upper rather fleshy and succulent, round, branched, remarkably smooth, and, as well as the under surface of the leaves shining. Leaves alternate, petiolate, stipulate. Stipules sessile, oblong, acuminate, deciduous. Leaves somewhat fleshy, very smooth, persistent, very unequally cordate at the base, the one lobe being twice the size of the other, so that the leaf is very oblique, acute at the apex, margin irregularly and obscurely toothed, the young leaves pinkish at the margin, seven-nerved, nerves not very conspicuous on the upper, very distinct on the under surface, upper surface of a light green, under of a bright or pearly white (owing to great inequalities, of the surface.) Peduncles dichotomous, with opposite bracts under the forks, and at the pedicels; bracts semi-amplexicaul, ovate, erect, of a pinkish colour. Flowers monœcious. Staminiferous flowers placed lowest in the cyme, spreading, two external longer, opposite, roundish, inseparable from the pedicels, two internal smaller, attenuate at the base, narrower but not shorter than the external ones. Stamens numerous, short, erect; anthers oblong, erect, two-celled, yellow. Pistilliferous flowers at the top of the cyme. Perigone having the tube three-winged, two folioles in an outer whorl, five in a double series, of unequal dimensions. Ovary inferior or only semi-adherent. Styles three, short, divergent. Stigmata divided, large, spiral, pubescent, yellow. Capsule triangular, three-winged, wings unequal, the third being very long, three-celled. Seeds very numerous, small, brown, and very much pitted.

Popular and geographical notice. This species of Begonia is a native of the mountains of Jamaica. The affinities of the order have been much discussed, without any satisfactory conclusion being formed. The analogy of properties is in favour of the Polygoniaceæ. Begonia grandiflora and Begonia tomentosa have bitter astringent roots, which are used in Peru in hæmorrhages and scorbutus, like Bistort with us. Begonia odorata and Begonia suaveolens are fragrant, like Pologonum odoratum. Rheum ribes yields in the East a cooling drink, a similar one is prepared in Brazil from several species of Begonia. Oxalate of potass is obtained from several species of Rumex, so likewise from many Begonias. Sundry Rumices are used as sorrels, and the leaves of this species are known in Jamaica, and those of Begonia obliqua in Martinique as the "Sorrel of the woods." While in Brazil the leaves of Begonia ulmifolia, bidentata, spathulata, cucullata and hirtella, are all used as cooling salads; lastly the root of Begonia obliqua is called "wild rhubarb."

It was brought to England in 1779. Our plant grew in the very fine collection of John Allcard, Esq. Stratford, near London. It grows in the conservatory, and is easily propagated by cuttings.

In Hindostan, the god of love is known as Camdeo. There we may see the fair young child surrounded by gay laughter-loving nymphs. His mother never leaves him,—his spouse is Retty, the essence of affection,—and his bosom friend is Bessent, or Spring. The plains of Agra are his favourite resort. His bow is of sugar cane, twined with flowers; his string with bees; his five arrows are each pointed with an Indian flower. The Hindoo nymphs chant the following hymn to the Indian cupid:

God of the flowery shafts, and flowery bow,
Delight of all above and all below!
Thy loved companion, constant from his birth,
Is ycleped Bessant, gay spring on earth,
Weaves thy green robes and flaunting bowers,
And from thy cloud draws balmy showers,
He with fresh arrows fills thy quiver,
(Sweet the gift, and sweet the giver,)

* We are indebted for this description and figure to that delightful work "the Botanist."

And bids the many-plumed warbling throng
Burst the fresh blossoms with their songs,
"He bends the luscious cane, and twists the string
With bees,—how sweet, but ah! how keen their sting,
He with five flowerets tips thy ruthless darts,
Which through five senses pierce enraptured hearts."
Translation by SIR WILLIAM JONES.

But we will leave this dangerous land, and wander through the ever blooming vales of Japan. Let us deck ourselves with her gorgeous lilies,—her Japonicas,—her flowers so beautiful that even the ladies are named from them. Where'er we roam we shall find that nature strews the earth with flowers.

We proceed to take a brief survey of the habits of flowers. Many flowers open their petals in the morning, and close them in the evening; yet all do not open or close at the same hour. Plants of the same species are pretty regular to an hour in equal temperatures; hence the daily opening and shutting of the flower has been called Horologium Floræ.

It has been very truly observed that flowers were the first playthings of Linnæus; whose motto was,

Tantus amor florum.

This devoted lover of flowers carefully noticed the sensibility of plants, and composed a horologe of flowers. The list is given in his "Philosophia Botanica," which, however, is only valuable to us in giving the names of plants which open and close at stated periods, as the time given is for the meridian of Upsal, and we must, therefore, in order to form one for Britain, make our own observations. For the use of our friends we have given a list of twenty-four (all of which may be easily procured,) extracted from that magnificent and useful work, the Encyclopædia of Gardening, by J. C. Loudon, Esq., and by observation of the following plants also, the ingenious reader may be enabled to add to the number,—many species of convolvulus and campanula, the marvel of Peru, or belle-de-nuit, broom, tulips, cress, hibiscus, yellow lily, white water lily, and dianthus.

DIAL OF FLOWERS.

TIME OF OPENING.

		h.	m.
Yellow Goat's Beard	*T.P.	3	5
Late-flowering Dandelion	Leon S.	4	0
Bristly Helminthia	H.E.	4	5
Alpine Borkhausia	B.A.	4	5
Wild Succory	C.I.	4	5
Naked Stalked Poppy	P.N.	5	0
Copper-coloured Day Lily	H.F.	5	0
Smooth Sow Thistle	S.L.	5	0
Alpine Agathyrsus	Aga.A.	5	0
Small Bind-weed	Con.A.	5	6
Common Nipple Wort	L.C.	5	6
Common Dandelion	L.T.	5	6
Spotted Achyrophorus	A.M.	6	7
White Water Lily	N.A.	7	0
Garden Lettuce	Lac. S.	7	0
African Marigold	T.E.	7	0
Common Pimpernel	A.A.	7	8
Mouse-ear Hawkweed	H.P.	8	0
Proliferous Pink	D.A.	8	0
Field Marigold	Col.A.	9	0
Purple Sandwort	A.P.	9	10
Small Purslane	P.O.	9	10
Creeping Mallow	M.C.	9	10
Chickweed	S.M.	9	10

* *These are the initial letters of the Latin names of the plants.*

DIAL OF FLOWERS.

TIME OF CLOSING.

		h.	m.
Helminthia echioides	B.H.	12	0
Agathyrsus alpinus	A.A.	12	0
Borkhausia alkina	A.B.	12	1
Leontodon serotinus	L.D.	12	0
Malva caroliniana	C.M.	12	1
Dianthus prolifer	P.P.	1	0
Hieracium pilosella	M.H.	2	0
Anagallis arvensis	S.P.	2	3
Arenaria purpurea	P.S.	2	3
Calendula arvensis	F.M.	3	0
Tagetes erecta	A.M.	3	4
Convolvulus arvensis	S.B.	4	5
Achyrophorus maculatus	S.A.	4	5
Nymphæa alba	W.W.L.	5	0
Papaver nudicaule	N.P.	7	0
Hemerocallis fulva	C.D.L.	7	8
Cichorium intybus	W.S.	8	9
Leontodon taraxacum	C.D.	8	9
Tragopogon pratensis	Y.G.B.	9	10
Stellaria media	C.	9	10
Lapsana communis	C.N.	10	0
Lactuca stativa	G L.	10	0
Sonchus lævis	S.T.	11	12
Portulaca oleracea	S.P.	11	12

The time here stated is from noon to night.

Among the poets we often meet with allusions to floral dials.

The dial, hid by weeds and flowers,
Hath told, by none beheld, the solitary hours.—WILSON.

Young Joy ne'er thought of counting hours,
'Till Care, one summer's morning,
Set up, among his smiling flowers,
A dial by way of warning.—MURRAY.

What a wide field for the imagination is displayed in the succeeding quotation from Hartley Coleridge. We might fancy ourselves luxuriating in a garden of roses, where "every flower that blows" would add to our felicity; where the most agreeable and delightful companions were assembled to pass the hours in heedless pleasure,—where no care,—no sorrow,—no unpleasant recollections of past disappointments,—of hopes destroyed,—or the overthrow of anticipated happiness,—are allowed to interrupt our joy, and mar the beauty of the enchanted scene. Alas! these are but day-dreams scattered by a breath. The rude realities of life—the continual frustration of long-cherished designs,—and the constant blighting, if not extinction of our fondest hopes,—all prove how utterly fallacious are the projects on which unassisted man attempts to construct a durable felicity.

Boswellia serrata.

BOSWELLIA SERRATA.—OLIBANUM-YIELDING BOSWELLIA.

CLASS X. DECANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, BURSERACEÆ.

IT was formerly conjectured, on the authority of Linnæus, that the Olibanum of commerce was the product of the Juniperus *Lycia*, but this opinion appears to be erroneous; for this species of Juniper is a native of the south of France, and the French botanists deny that it yields the resinous gum in question. It is now generally supposed that it is the product of different trees; Lamarck ascribing it to the Amyris *gileadensis;* Forskal and Sprengel to the Amyris *kataf*,[a] while Mr. Colebrooke has satisfactorily proved that the Boswellia *serrata* affords that which comes from India.

This species of Boswellia, so named by Dr. Roxburgh in memory of the late Dr. John Boswell, of Edinburgh, is indigenous to the mountains of Central India, where it is known under the vulgar name of *Sali.* It is a lofty tree, with the foliage crowded at the extremities of the branches; and is frequent in the forests between the Sone and Nagpur, on the route to Berar. The leaves are pinnate, consisting of about ten pairs of obliquely ovate-oblong, obtuse, serrated, villous leaflets, with a terminal one, about an inch and a half in length, sometimes opposite, sometimes alternate, and supported on short, round, downy petioles. The flowers, which are produced in simple axillary racemes, shorter than the leaves, are numerous, small, of a pale pink colour, accompanied with minute bracteas. The calyx is monophyllous, 5-toothed and downy; the corolla consists of five oblong, spreading petals, downy on the outside, and considerably larger than the stamens. The nectary is a fleshy, crenate ring, surrounding the lower two-thirds of the germen. The filaments are ten, alternately shorter, inserted on the exterior margin of the nectary, and supporting oblong anthers. The germen is superior, ovate, with a cylindrical style, and 3-lobed stigma. The capsule is oblong, triangular, smooth, 3-celled and 3-valved, each cell containing a single seed, which is broad-cordate at the base, deeply emarginate, with a long and slender point.

Olibanum is chiefly collected in India; but it is also imported in casks and chests from the Levant. It distils from incisions made in the bark of the tree, during the summer months. It is the frankincense of the ancients, the *thus* of the Romans, and the Λιβανος of Theophrastus and Dioscorides. The latter writer mentions it as procured from India; and Theophrastus, Hist. Pl. lib. ix. c. 4, says Γινεται μεν ουν ὁ λιβανος εν τη των Αραβων χωρα μεση περι του Σαβα και Αδραμιττα, και Κιταβαινα. The same observation is made by Strabo, l. xvi. p. 778; Plin. Nat. Hist. lib. vi. c. 28; and Virgil, Geor. i. v. 58.

The burning of incense made part of the daily service of the ancient Jewish church. The priests drew lots to know who should offer it. The destined person then took a large silver dish, in which was a censor full of incense, and being accompanied by another priest carrying some live coals from the altar, went into

[a] Forsk. *Descrip. Plant. cent.* iii. *p.* 80.

the temple. Then, having said a prayer or two, on a signal given, he set fire to the incense, the whole multitude continuing all the time in prayer. The quantity of incense offered each day was half a pound in the morning, and as much at night. One reason of this continued burning of incense might be, that the multitude of victims that were continually offered up, would have made the temple smell like a slaughter house, and consequently have inspired the comers rather with disgust and aversion, than awe and reverence, had it not been overpowered by the agreeable fragrance of those perfumes.

In the early ages, it was much used as incense in sacrifices; and in modern times, the Greek and Romish churches still retain the use of frankincense in some of their ceremonies, where the diffusion of such vapours round the altar forms a part of the prescribed religious service.

The source of the *Olibanum*, the especial incense of the ancients, has long been a matter of doubt. Supplies of this resin were formerly drawn only from Africa, and it is said by some to have been called *Gum Thuris* on account of its being brought by the merchants from *Thur* or *Thor*, a port in the North Bay of the Red Sea, near Mount Sinai, and in order to distinguish it in commerce from gum arabic, which was chiefly exported from Suez. Linnæus supposed the Olibanum of Africa to be procured from a species of Juniper (J. Lycia,) but of this no satisfactory evidence has been adduced; and the assumption is now generally denied. It is more than probable, that Olibanum, or balms which so closely resemble it that they pass current in commerce, may, like gum-arabic, be afforded by several different plants: and of this there seems to be evidence offered by Messrs. Turnbull and Colebrooke, who have shown that a gum collected in the mountainous regions of central India, and sent to this country without a name, but which the London Drug Merchants recognised as *Olibanum* and which now forms the greater part of the *Olibanum* used in Europe, it is an exudation from a tree called, in India *Sali*, the *Boswellia Serrata* of botanists.

Qualities.—Olibanum is in the form of semi-transparent masses or tears, of a pale yellowish, or pink colour, solid, hard, and brittle. It has a bitterish acrid taste, and when chewed, sticks to the teeth, and renders the saliva milky. When heated, it burns brilliantly, and diffuses an agreeable odour. Alcohol dissolves three-fourths of it, and water about three eighths. On distillation alone, it affords a yellowish, fragrant, essential oil. From the analysis of Braconnot, it appears, that in 100 parts Olibanum are composed of 8 essential oil, 56 of resin, 30 of gum, and 5·2 of a matter resembling gum, but insoluble in water and alcohol.[a]

Medical Properties and Uses.—The virtues of Olibanum are merely those of a stimulant and diaphoretic. It was formerly much used as a remedy in various diseases of the head and chest, in vomitings, diarrhœa and dysentery; and externally, as a vulnerary. Riverius recommends it in pleurisies; and Geoffroy professes to have experienced its success in those diseases, especially after venesection. The dose was from ℈j to 3j. At the present day it is seldom employed, except as a perfume in the rooms of the sick, and is scarcely entitled to a place in the materia medica.

[a] *Ann. de Chim.* lxviii. 60.

Brachycome Iberidifolia

BRACHYCOME IBERIDIFOLIA.—IBERIS-LEAVED BRACHYCOME.

CLASS XIX. SYNGENESIA.——ORDER I. SUPERFLUA.

NATURAL ORDER, COMPOSITÆ.

CAPITULE many flowered, heterogamous, florets of the ray in a single series, ligulate, pistilliferous, those of the disk tubulose, hermaphrodite. The scales of the campanulate, involute in few rows, and membranous at the margins. Receptacle conical, slightly pitted. The corollas of the ray ligulate, those of the disk tubulose, with the limb five-toothed. Anthers devoid of a tail. Achenia (seed vessels,) flattish, compressed, without a beak. Pappus very short, occurring in the form of a bristly crown.

A perennial herbaceous plant, smooth throughout; stem erect, branched, leaves pinnately cut, segments linear-subulate, distinct, entire. Peduncles naked, bearing a single capitule. Scales of the involucre oblong, somewhat pointed and membranous at the top. Florets of the ray tubulose, tube somewhat bulging, and hairy below, limb smooth, five toothed. Stamens five, anthers syngenesian, and devoid of an appendix. Style one, stigmata two, club-shaped and hairy. Achenia flattish, club-shaped, and crowned by a scanty, bristly pappus or seed down.

This is one of the plants discovered on the Swan River, on the west coast of New Holland, by Baron Hugel. It is called the Large Swan (River?) Daisy, from its resemblance, in its botanical characters, to the genus Bellis, from which, when the pappus is entirely wanting, as occasionally occurs with this species, it scarcely differs, save in the membranous tips of the scales of the involucre. Though we hail it as a pleasing accession to our already rich store of cultivated flowers, we much question whether the settlers on the Swan River will accept of it as a substitute for the daisy of their native land, with all its touching associations and poetical enchantments, and which has possessed a charm and an interest for the self-exiled missionary, scarcely to be understood, save by those long severed from their native strand. The devoted and accomplished missionary, Dr. Carey, while at Mysore,

"Where Flora's giant offspring tower
In gorgeous liveries all the year."

cherished an English Daisy with an almost passionate regard. He thus wrote to a friend in Yorkshire:—"With great labour have I preserved the common field daisy, which came up in some English earth, for six or seven years, but my whole stock is now only one plant. I have never been able, even with sheltering them, to preserve an old root through the rains, but I get a few seedlings every year. The proportion of small plants in the country is very inconsiderable, the greater number of our vegetable productions being either large shrubs, immense climbers, or timber trees."

This Brachycome was introduced by means of seeds sent to Mrs. Wray, of the Oaklands, near Cheltenham. It flowers abundantly in the open border, but is so intolerant of wet, that to ensure its preservation, it should be taken up, and transferred to the green-house, in autumn.*

James Montgomery, struck with the passionate regard of Dr. Carey for the daisy, has expressed as follows, the sentiments which he supposed the missionary might feel, at the sight of this flower:—

Thrice welcome, little English flower!
My mother-country's white and red,
In rose or lily, till this hour,
Never to me such beauty spread:
Transplanted from thine island-bed,
A treasure in a grain of earth,
Strange as a spirit from the dead,
Thine embryo sprang to birth.

Thrice welcome, little English flower!
Whose tribes, beneath our natal skies,
Shut close their leaves while vapours lower;
But, when the sun's gay beams arise,
With unabash'd but modest eyes,
Follow his motion to the west,
Nor cease to gaze till daylight dies,
Then fold themselves to rest.

* We have borrowed this description from Mr. Maund's agreeable work "The Botanist."

Thrice welcome, little English flower!
To this resplendent hemisphere,
Where Flora's giant offspring tower
In gorgeous liveries all the year;
Thou, only thou, art little here,
Like worth unfriended and unknown,
Yet to my British heart more dear
Than all the torrid zone.

Thrice welcome, little English flower!
Of early scenes beloved by me,
While happy in my father's bower,
Thou shalt the blithe memorial be;
The fairy sports of infancy,
Youth's golden age, and manhood's prime,
Home, country, kindred, friends,—with thee,
I find in this far clime.

Thrice welcome, little English flower!
I'll rear thee with a trembling hand;
Oh, for the April sun and shower,
The sweet May dews of that fair land,
Where Daisies, thick as star-light, stand
In every walk!—that here may shoot
Thy scions, and thy buds expand,
A hundred from one root.

Thrice welcome, little English flower!
To me the pledge of hope unseen;
When sorrow would my soul o'erpower
For joys that were, or might have been,
I'll call to mind, how, fresh and green,
I saw thee waking from the dust;
Then turn to Heaven with brow serene,
And place in God my trust.

It is not poets alone, says an author quoted in "the Sentiment of Flowers," who half worship flowers. What an enthusiastic devotion is that which sends a man from the attractions of home, the ties of neighbourhood, the bonds of country, to range plains, valleys, hills, and mountains, for a new flower. What a spirit must have animated Hermann, Hasselquist, Tournefort, Linnæus, Solander, Saussure, Humboldt, and hundreds of those who have sacrificed every personal convenience and selfish motive for the sake of illustrating the volume of nature, and opening almost a new existence upon those whose researches are necessarily limited. But the love of flowers is not shared exclusively by the poet and the naturalist. Oh! no, the little child loves the flower garden, and watches with intense interest the early opening buds, such fair types of itself. The young, the middle aged, and the hoary head, silvered with the snows of threescore years and ten; all, all hang with delight over the blooming parterre. The bud of infancy, the half expanded flower of youth, the perfect blooms of the meridian of life, and the drooping leaves of closing existence, are here all seen and noted. No wonder that man, in the beautiful simplicity of earlier times, loved flowers, and hence formed an eloquent language, that spoke to the heart in a 'still small voice,' more touching than the tenderest accents. No wonder that the most lovely ornament for the young virgin was a chaplet of fair flowers; the most glorious distinction of the warrior a wreath of bays. No wonder that the bier of the early dead was strewed with these passing emblems of a passing existence.

The flowers that we behold each year,
In chequered meads their heads to rear,
Now rising from their tomb,
E'en these do cry,
That though men die,
New life from death may come. HAGTHORPE.

October, says William Howitt, bears pretty much the same character in the fall of the year, as April does in the spring. The beginning of April is still wintry, the end may often lay strong claims to the name of summer; the commencement of October is frequently distinguished by the lingering of summer-warmth and summer-flowers, the end by frosts and snows. It is a month as various as April—clear skies and fogs, drought and rain, sunshine and storm, greenness and nakedness, it has them all, and often in a rapid succession. In the early part of the month the hardy yarrow and a few other flowers remain, and the meadow-saffron (Colchicum autumnale) and the autumnal crocus (Crocus autumnalis) spring up and give a last gleam of floral beauty to the year. The grass, if the weather be mild, is vividly green, and luxuriant as in spring. Fine clear days occasionally come out, affording in the perfect repose of the landscape, the blueness of the waters, and the strong shadows cast by the trees upon the sunny ground, the highest pictorial beauty; but they are speedily past, and rains and mists wrap the face of the earth in gloom. Yet the glooms and obscurity of autumnal fogs, however dreary to the common eye, are not unwelcome to the lover of Nature. They give an air of wildness to the most ordinary scenery; but to mountains, to forests, to solitary sea-coasts, they add a sombre sublimity that at once soothes and excites the imagination; and even when not pleasant themselves, they minister to our pleasures by turning the heart to our bright firesides, to the warmth and perpetual summer of home.

Orchards are now finally cleared of fruit, at least the trees, for in the cider counties they still lie in large heaps in the orchards in all their glory of gold and crimson, and many will lie there till frosty nights set in; the frost being supposed to improve their quality by increasing the quantity of saccharine matter in them, though they are apt to become decayed by too long lying, and to injure the flavour of the cider. Gardens have lost the chief of their attractions; farmers are busy ploughing, and getting in their wheat: swallows generally disappear this month.

Artocarpus incisa.

ARTOCARPUS COMMUNIS OR INCISA.—THE BREAD FRUIT.

Class XXI. MONŒCIA.—Order XIX. MONIMIEÆ.

Natural Order, ARTOCARPEÆ.—THE BREAD-FRUIT TRIBE.

The bread-fruit, originally found in the south-eastern parts of Asia and the islands of the Pacific, though now introduced into the tropical parts of the western continent, and the West India islands, is one of the most interesting, as well as singular productions of the vegetable kingdom. There are two species of it; the bread-fruit, properly so called *(Artocarpus incisa,)* with the leaves deeply gashed or divided at the sides, which grows chiefly in the islands; and the Jack fruit, or Jaca tree (*Artocarpus integrifolia,*) with the leaves entire, which grows chiefly on the main land of Asia. The latter has been already noticed.

The bread-fruit is a beautiful as well as a useful tree: the trunk rises to the height of about forty feet, and, in a full grown tree, is from a foot to fifteen inches in diameter; the bark is ash-coloured, full of little chinks, and covered by small knobs; the inner bark is fibrous, and used in the manufacture of a sort of cloth; and the wood is smooth, soft, and of a yellow colour. The branches come out in a horizontal manner, the lowest ones about ten or twelve feet from the ground; and they become shorter and shorter as they are nearer the top: the leaves are divided into seven or nine lobes, about eighteen inches or two feet long, and are of a lively green. The tree bears male and female flowers, the males among the upper leaves, and the females at the extremities of the twigs. When full grown, the fruit is about nine inches long, heart-shaped, of a greenish colour, and marked with hexagonal warts, formed into facets. The pulp is white, partly farinaceous and partly fibrous; but, when quite ripe, it becomes yellow and juicy. The whole tree, when in a green state, abounds with a viscid milky juice, of so tenacious a nature as to be drawn out in threads.

In the island of Otaheite and other places, where the bread-fruit forms the chief support of the people, there are, as is the case with cultivated vegetables in all countries, many varieties; only two, however, are very different from each other—that which contains seeds in the fruit, and that which contains none. The variety with seeds is much inferior to the other, being more fibrous, containing less farina, and not so pleasant to the taste; it is therefore, not cultivated, though in cases of need, it is roasted and eaten. Whether the seedless sort has been produced wholly by cultivation it is not easy, and would not be of much importance, to ascertain; it is the one cultivated in the South Sea islands; it was originally found only there; and the tree was not in much repute till these islands were discovered.

The bread-fruit continues productive for about eight months of the year: such is its abundance, that two or three trees will suffice for a man's yearly supply, a store being made in a sour paste, called *mahe* in the islands, which is eaten during the unproductive season. The planting of the seedless variety is now saved, as the creeping roots send up suckers which soon grow to trees. When the fruit is roasted till the outside is charred, the pulp has a consistency not very unlike that of wheaten bread; and the taste is intermediate between that of bread and roasted chesnuts. It is said to be very nourishing, and is prepared in various ways.

The timber of the bread-fruit, though soft, is found useful in the construction of houses and boats; the male flowers, dried, serve for tinder; the juice answers for bird lime and glue; the leaves for packing and for towels; and the inner bark, beaten together, makes one species of the South Sea cloth.

The earliest account of the bread-fruit is by Captain Dampier, in 1688. "The bread-fruit" says this navigator, "grows on a large tree, as big and high as our largest apple trees; it hath a spreading head, full of branches, and dark leaves. The fruit grows on the boughs like apples; it is as big as a penny loaf, when

wheat is at five shillings the bushel; it is of a round shape, and hath a thick tough rind. When the fruit is ripe, it is yellow and soft, and the taste is sweet and pleasant. The natives of Guam use it for bread. They gather it when full grown, while it is green and hard; then they bake it in an oven which scorcheth the rind, and maketh it black; but they scrape off the outside black crust, and there remains a tender thin crust; and the inside is soft, tender, and white, like the crumb of a penny loaf. There is *neither seed nor stone* in the inside, but all of a pure substance, like bread. It must be eaten new, for, if it be kept above twenty-four hours, it grows harsh and choky, but it is very pleasant before it is too stale. This fruit lasts in season *eight months* in the year, during which the natives eat no other sort of bread kind. I did never see of this fruit anywhere but here. The natives told us, that there is plenty of this fruit growing on the rest of the Ladrone Islands; and I did never hear of it anywhere else."

The scientific men who accompanied Captain Cook in his voyages, came home with the most enthusiastic ideas of the bread-fruit. Dr. Solander calls it "the most useful vegetable in the world," and urges that no expense should be spared in its cultivation. The mere idea of bread, the most valuable food of man, growing spontaneously, was doubtless calculated to excite attention—almost, perhaps, as strongly as the subsequent description of the poet:—

"The bread-tree, which, without the ploughshare, yields
The unreap'd harvest of unfurrow'd fields,
And bakes its unadulterated loaves
Without a furnace, in unpurchased groves,
And flings off famine from its fertile breast,
A priceless market for the gathering guest."

The milk-like sap of these trees, affords a viscid substance resembling bird-lime or caoutchouc, which is used as a cement, and for stopping cracks in vessels designed for holding water. The broad leaves are employed to wrap up the fruit in, and also as plates, dishes, and napkins for the guests to wipe their hands on. The inner bark is beaten out into cloth, such as is common in the South Sea Islands, and more is made from this tree than from the paper mulberry. The timber which is light, is used for building boats and houses, and the stamineous catkins form a substitute for tinder.

"Towards the end of the month," says William Howitt in his account of August, "symptoms of the year's decline press upon our attention. The morning and evening air has an autumnal freshness; the hedge-fruit has acquired a tinge of ruddiness; the berries of the mountain-ash have assumed their beautiful orangy hue; and swallows twitter as they fly, or sit perched in a row upon a rail or the dead bough of a tree. The swift has taken its departure. That beautiful phenomenon, the white fog, is again beheld rolling its snowy billows along the valleys; the dark tops of trees emerging from it as from a flood."

As we gaze on the beauties of the lower world we may well say with the poet:—

"Oh good beyond compare!
If thus thy meaner works are fair,
If thus thy bounties gild the span
Of ruined earth and sinful man:
How glorious must that mansion be
Where thy redeemed shall dwell with thee!"

a

b

c

Canella alba.

CANELLA ALBA.—WHITE, OR LAUREL-LEAVED CANELLA.

Class XI. MONADELPHIA.—Order I. DODECANDRIA.

Natural Order, MELIACEÆ.——THE BREAD-TREE TRIBE.

Fig. (*a.*) a flower, with its petals forcibly expanded; (*b.*) the fruit; (*c.*) the pistil standing on the 3-lobed calyx magnified, with the two stigmas.

The *Canella* is a common tree in most of the West India islands, and on the continent of South America, growing in the inland woods, where it attains a considerable size.

The stem rises from ten to fifteen feet in height, very straight and upright, and divided only at the top. The branches are erect, and not spreading; furnished with petiolated leaves, irregularly alternate, oblong, obtuse, entire, of a dark green colour, thick like those of the laurel, and shining. The bark is whitish, by which it is commonly known at first sight in the woods. The flowers, which grow at the extremities of the branches in clusters upon divided foot-stalks, are small, of a violet colour, and seldom open. The calyx is 5-leaved, and persistent; the sepals are roundish, concave, smooth, and membranous. The petals are five times as long as the calyx, oblong, sessile, concave, erect, two a little narrower than the others. The stamens are monadelphous, the filaments forming an urceolate tube, sometimes called a nectary, to the outer side of which the anthers adhere. The germen is superior, within the nectary-like tube, ovate, and 3-celled; the style is cylindrical, with three rough, convex, blunt stigmas. The fruit is an oblong, fleshy, 3, or by abortion 1-celled, smooth, black 1-2 seeded berry. The seeds are exalbuminous, the embryo curved, and the cotyledons linear. The annexed plate represents a branch of the tree in flower, and the berries of their natural size.

About the year 1579, as Captain Winter, who commanded the Elizabeth, which formed part of the squadron under the command of Sir Francis Drake, was sailing through the straits of Magellan, he discovered the Wintera *aromatica*, which yields a bark, first mentioned, described, and named by Clusius, as *Cortex Winteranus*, in compliment to the discoverer. Clusius was the first, also, to record the introduction of Canella *alba*, about the beginning of the seventeenth century; which Parkinson says, was in his time often mistaken for Winter's bark: it was John Bauhin, however, who first confounded the names, by styling Cortex Winteranus, Canella *alba:* and although Sir Hans Sloane gave separate descriptions of each in the Transactions of the Royal Society, the botanical distinctions were paid so little attention to by Lemery, Pomet and other writers on the materia medica, that Linnæus himself was led into error, and combined two different genera under the name of Laurus *Winterana*. He afterwards separated the Canella *alba* from *Laurus*, and established it as a distinct genus, by the name *Winterania;* under which title it has been universally, but very improperly known; for while the tree we have figured comes, as we have already stated, from the West Indies, the Wintera *aromatica*, whose existence remained in oblivion nearly a century, during which time the bark of the former was substituted for it, is found in the neighbourhood of the Antarctic regions, and belongs to a different class. An excellent plate of it is given in Vol. V. of Medical Observations and Inquiries, and to that work we are indebted for the subjoined botanical account by Dr. Solander; which it will be well to compare with the one already given of Canella *alba*.

"*The Winter's Bark-tree*, Winterana *aromatica*, is one of the largest forest trees upon Terra del Fuego; it often rises to the height of fifty feet. Its outward bark is, on the trunk, grey, and very little wrinkled, on the branches quite smooth and green.

"The *branches* do not spread horizontally, but bent upwards, and form an elegant head of an oval shape.

"The leaves come out, without order, of an oval elliptic shape, quite entire, obtuse, flat, smooth, shining, of a thick, leathery substance, evergreen, on the upper side of a lively deep green colour, and of a pale bluish colour underneath, without any nerves, and their veins scarcely visible; they are somewhat narrower near the footstalks, and there their margins are bent downwards.

"In general, the leaves are from three to four inches long, and between one and two broad; they have very short *footstalks*, seldom half an inch long, which are smooth, concave on the upper side, and convex underneath. From the scars of the old footstalks the branches are often tuberculated.

"The peduncles, or footstalks for the flowers, come out of the *axillæ foliorum*, near the extremity of the branches; they are flat, of a pale colour, twice or three times shorter than the leaves; now and then they support only one flower, but are oftener near the top divided into three short branches, each with one flower.

"The *bracteæ* are oblong, pointed, concave, entire, thick, whitish, and situated one at the basis of each peduncle.

"*Calyx*, or *flower-cup*, it has none; but in its place the flower is surrounded with a *spathaceous* gem, of a thick, leathery substance, green, but reddish on the side which has faced the sun: before this gem bursts, it is of a round form, and its size is that of a small pea. It bursts commonly so that one side is higher than the other, and the segments are pointed.

"The *corolla* consists always of seven petals, which are oval, obtuse, concave, erect, white, have small veins, and are of an unequal size, the largest scarcely four lines long; they very soon fade, and drop off almost as soon as the gem bursts.

"The filaments are from fifteen to thirty, and are placed on the flattened side of the receptacle; they are much shorter than the petals, and gradually decrease in length towards the sides.

"The *antheræ* are large, oval, longitudinally divided into two, or as if each were made up of two oblong *anthers*.

"The *germina* are from three to six, placed above the receptacle, turbinated, or of the shape of an inverted fig, flat on the inside, and somewhat higher than the stamina; they have no styles, but terminate in a stigma, which is divided into two or three small lobes.

"The fruit I have never seen in its perfect ripe state, but can conclude from the unripe ones, which I saw in abundance, that each germen becomes a separate seed-vessel, of a thick, fleshy substance, and unilocular: in each I could plainly discern the rudiments of three, four, or five seeds."

"The bark," (says Dr. Fothergill,) "of the Winterania, or Winter's cinnamon, brought over by the Dolphin, in respect to figure, exactly resembles that which was delineated by Clusius. The pieces are about three or four inches square, of different degrees of thickness, from a quarter to three-quarters of an inch. It is of a dark brown cinnamon colour, an aromatic smell if rubbed, and of a pungent, hot, spicy taste, which is lasting on the palate, though imparted slowly. It has the name of Winter's cinnamon, from a faint resemblance in colour and flavour to that grateful aromatic, though differing from it greatly in every other respect. This bark is only brought to us from the Straits of Magellan, and is the produce of the tree above described. Much celebrated as an antiscorbutic by the first discoverers, but unknown in the practice of physic, no quantity, except as a curiosity, having been brought to Europe till the return of the ships sent out on the expeditions to the South Seas."

Qualities and Chemical Properties.—Every part of the tree exhales a powerful aromatic odour, and when in blossom, perfumes the whole neighbourhood. The flowers, dried, and softened again in warm water, are said to diffuse an odour nearly approaching to that of musk. The leaves have a strong smell of laurel. The berries, after having been some time green, turn blue, and become at last of a glossy black colour, and have a faint aromatic taste and smell. They are, when ripe, as well as the fruits of several kinds of laurel, very agreeable to the white-bellied and bald-pate pigeons, *(Columba Jamaicensis* and *leucocephala,)* which feeding upon them, acquire that peculiar flavour so much admired in the places where they are found.

Canella alba is brought to England in casks and cases; the principal part is in quills, which are of a whitish yellow; while the flat pieces, which are somewhat thicker, are of a rather darker colour. The odour is strongly aromatic; the taste aromatic also, more like the clove than the cinnamon, warm, pungent, and somewhat bitter. It gives out all its virtues to alcohol, but the infusion, though bitter, possesses little of its aromatic properties. The infusion is not altered by galls; sulphate of iron, or zinc; muriate of mercury, or tartarized antimony; but nitrate of silver, and acetate of lead, render it milky, and throw down precipitates. The essential oil is often scented with the oil of cloves, and sold for it.

The results of analysis are, that it affords resin, volatile oil, extractive and colouring matters, gum, amidon, albumen, the acetates of potash and lime, hydrochlorate of potash, and hydrochlorate of magnesia. —*Journ. de Pharm.* vii. 197.

Medical Properties and Uses.—On account of its aromatic flavour, Canella *alba* is employed to cover the taste of several articles of the materia medica. Combined with aloes, it forms a popular remedy, well known by the name of *hiera picra*, and added to the tincture and infusion of senna, it covers its nauseous taste, renders it much more grateful to the palate, prevents it from griping, and might be advantageously substituted for the cardamom seeds, which enter into the composition of the former. It appears to be more useful as a condiment than as a medicine, for the bark, together with the fruit of the capsicum, were formerly common ingredients in the food and drink of the Caraibs, the ancient natives of the Antilles; and even at present it makes a necessary addition to the meagre pot of the negroes. In Martinique the berries are made into a much esteemed liquor.

Dose.—From ten grains to thirty, or more.

Off Prep.—Tinctura Gentianæ composita. *E.*
Vinum Aloes. *L. E.*
Pulvis Aloes cum Canella. *D.*

Camellia Japonica.

CAMELLIA JAPONICA.—THE CAMELLIA JAPONICA.

Class XVI. MONADELPHIA.—Order VI. POLYANDRIA.

Natural Order.——TERNSTROMIACEÆ.

Calyx imbricate, surrounded by accessory bracteas or sepals. Stamens monadelphous. Anthers elliptical 2-celled, bursting lengthwise. Capsule furrowed, with a dissepiment in the middle of each valve, separating from the free triquetrous axis when ripe. Leaves ovate, acuminate, acutely serrated; flowers axillary, sessile, usually solitary; ovary smooth. This plant, in its native country, grows to a large tree. It is in high esteem among the Japanese and Chinese for the elegance of its large flowers, which exhibit a great variety of colours, but have no scent, and for its evergreen leaves. It is very common everywhere in the groves and gardens, flowering from October to April. It varies with white, red, yellowish, purple flowers, and variegated and blotched with the same colours, from single to semidouble and double. It is the greatest ornament of the greenhouses of Europe in spring, and is now cultivated by nurserymen to a vast extent. The plant was cultivated in England before 1742, by Robert James, Lord Petre.

Cult. All the species of *Camellia* are universally admired by every collector of plants, on account of their beautiful rose-like flowers, and elegant, dark-green, shining, laurel-like leaves. They are very hardy green-house plants, and are easy of culture, requiring only to be sheltered from severe frost. The best soil for them is an equal quantity of good sandy loam and peat. Messrs. Loddiges find that light loam alone answers as well or better, and in the Comte de Vandes gardens at Bayswater rotten dung is mixed with loam and peat. The pots should be well drained with pieces of potsherds, that they may not get soddened with too much wet, as nothing injures them more than over-watering, particularly when they are not in a growing state. When growing freely, they can scarcely have too much, and they should be watered all over the leaves with a fine rose pot. They are readily increased by cuttings or inarching on the commoner kinds. The cuttings should be taken off at a joint as soon as they are ripened, and planted in sand under a hand-glass, where they will soon strike root; when this is the case, they should be planted singly into small pots, and set in a close frame, and they must afterwards be hardened to the air by degrees. (Sweet.)

The single red *Camellia Japonica* is propagated by cuttings or layers and seeds for stocks, and on these the other kinds are generally inarched or budded. Henderson, of Wood-hall near Hamilton, puts in cuttings at any time of the year, except when they are making young wood; lets them remain in a vinery for a month or more, and then puts them in a hot-bed, where there is a little bottom heat. A speedy mode of obtaining stocks is by planting stools in a pit devoted to that purpose, and laying them in autumn; the following autumn most of the layers will be rooted, when they may be taken off and potted, and used as stocks the succeeding spring. Inarching or grafting is performed early in the spring, when the plants begin to grow; the chief care requisite is so to place and fix the pot containing the stock, as that it may not be disturbed during the connection of the scion with the parent plant. The graft being clayed over is then covered with moss to prevent its cracking. When independent grafting is used, the mode called side grafting is generally used, and the operation of tongueing is generally omitted.

C. Sasanqua seeds most readily, and is often employed as the female parent for raising new varieties. The plants so raised from seed, if well treated, flower in 4 or 5 years, and if nothing new is produced they still make excellent stocks. Henderson of Wood-hall, who is one of the most successful growers of *Camellias* in Scotland, uses the following compost; equal parts of light-brown mould, river sand and peat earth, and a little rotten leaves, mixed well together; and when the camellias require shifting put some broken coal-char in the bottom of the pots, and some dry moss or *Hypnum* over it.

He gives the following account of his mode of treating *Camellias;* "The best time for a regular shifting of the *Camellia* is the month of February and beginning of March. After shifting all those that require it, put them into a peach-house, vinery or pinery, or in the warmest part of a green-

house. They will soon begin to make young wood. From the time they begin to make their young shoots till they have finished their growth give them plenty of water. They may be kept in the vinery or peach-house until they have formed their flower-buds, when a few of them may be removed to a colder place, such as behind the stage of a green-house, for the *Camellias* are fond of being shaded during strong sunshine. In three or four weeks after, a few more of the *Camellias* may be brought out of the peach-house, and put into a colder situation. This may be repeated three or four times, which will make as many different successions of flowering. Those that are wanted to come into flower early, may remain in the warm house until they are beginning to flower, when they should be taken to a cold place, as the coldest place in the green-house, then give them plenty of light only, and they will open their flowers well, and stand long. A *Camellia* cannot stand heat when in flower; indeed they seldom open their flowers well in heat, at all events the flowers soon fall off. Those that are kept all the summer in the vinery will come into flower by the 1st or middle of October, and a pretty large plant, having perhaps 50 or 100 flower-buds, will continue in flower till the month of January.

Had the Camellia, says the author of the "Flora Domestica," been a Greek, or Italian, or English plant, there would have been a great deal said of it by poets and lovers; and doubtless it makes a figure in the poetry of Japan. But, unfortunately for our quotations, though perhaps fortunately for their own comfort, the Japanese have hitherto had most of their good things to themselves. Their country would lay open a fine field for the botanist. See an interesting account of this apparently intelligent and amiable people in Golownin's Narrative of his Captivity among them.

There are two superb collections of the Camellia Japonica open to the public: one at Vauxhall, the other at Hackney.

In Japan an oil is expressed from the seeds of this plant which is constantly used in preparing food.

The species called the *Camellia Sasanqua* is a small shrub, so exactly like the tea-shrub, both in leaf and blossom, that they are not readily distinguished but by their size. The leaves have a pleasing scent, and, after being boiled, are used by the Japanese ladies to wash their hair. They are likewise sometimes mixed with the tea leaves to make their scent yet more agreeable.

SHEEP-SHEARING, says Mr. Howitt in his account of June, begun last month, is generally completed in this. It is one of the most picturesque operations of rural life, and, from the most ancient times, it has been regarded as a season of gladness and festivity. The simple and unvitiated sense of mankind taught them, in the earlier ages of society, that the bounty of Nature was to be gathered in with thankfulness, and in a spirit like that of the Great Giver, a spirit of blessing and benevolence. Therefore did they join with the brightness and beauty of the summer the sunshine of their grateful souls, and collect with mirth and feasting the harvests of the field, of the forest, and of the flock. The very spirits of the churlish, the hard and unkindly natures of the "sons of Belial," gave way before the united influence of the fair and plentiful time and of natural religion, so far as to feast their servants. The Bible, that treasury of the customs of antient nations, gives a most lively picture of their practice in this particular. Nabal, "a man in Maon, whose possessions were in Carmel, and who had three thousand sheep and a thousand goats, was shearing his sheep in Carmel," when David knowing it to be a time of abundance, sent some of his men out of the wilderness to solicit provisions. The men, when delivering their leader's message, used it as an argument, "for we are come in a good day."

The *Camellia Japonica* is the emblem of *unpretending excellence.*

Dryobalanops Camphora

Chabot, Zinco

DRYOBALANOPS CAMPHORA.—CAMPHOR TREE OF SUMATRA.

CLASS XIII. POLYANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, DIPTEROCARPEÆ.—THE CAMPHOR TREE TRIBE.

(*a*) Capsule. (*b*) Section. (*c*) Section of the seed.

THERE are two species of trees from which the camphor of commerce is obtained. That with which Botanists have been longest acquainted is the Laurus *Camphora* of Linneus, a large forest tree, that grows wild in Japan. From the wood, root, and leaves of this tree, the camphor is extracted by distillation. It has been supposed, perhaps erroneously, that the greater part of this valuable drug imported from India, is exclusively the product of a tree belonging to a different genus, the Dryobalanops *camphora*. Kœmpfer, indeed, had long ago remarked, that the camphor which is found in a concrete state, occupying cavities and fissures in the trunk of a tree in the islands of Borneo and Sumatra, is not the Laurus *camphora*; but it is only within these thirty years that the discovery of the species which yields it, was made by Mr. H. T. Colebroke, who was enabled to determine the genus from the examination of some seeds sent by Mr. Prince, a resident at Tapanooly, to Calcutta. In Sumatra, the camphor trees are confined to the country of the Battas, which extends about a degree and a half immediately to the north of the equator; and they are found in Borneo in nearly the same parallel of latitude. This valuable tree is not known to exist in any other part of the world, and on this account, as well as the difficulty of obtaining its produce, the camphor it yields bears an exorbitant price. It appears to be little known in Europe; and is stated by Mr. Jack to be all carried to China, where it sells for twelve times as much as that of Japan.

The Dryobalanops *camphora* is found growing in great abundance in the forests on the north-western coast of Sumatra, especially in the vicinity of Tapanooly. It is a lofty tree, frequently attaining the height of ninety feet, with a trunk that measures six or seven feet in diameter. It is said to flower only once in three or four years. The trunk is arboreous, and covered with a brown bark. The leaves are opposite below, and alternate above, elliptical, obtusely acuminate, parallel, veined, entire, smooth, 3-7 inches long, one inch and a half broad, and supported on short petioles, with subulate, caducous, stipules, in pairs. The flowers, according to Mr. Jack, are terminal and axillary, forming a kind of panicle at the extremity of the branches. The calyx is monophyllous, with five linear-lanceolate spreading teeth. The corolla is 5-petalled, longer than the calyx; the petals ovate-lanceolate, and in some degree adnate, or connected together at the base. The stamens are numerous, and have their filaments united into a ring, in which particular it differs from the genera most nearly related to it. The anthers are nearly sessile on the tube of the filaments, connive into a conical head round the style, and terminate in membranous points. The germen is superior, ovate, with a slender filiform style, longer than the stamens, and crowned by a capitate stigma. The capsule is ovate, woody, fibrous, longitudinally furrowed, embraced at the base by the calycine hemispherical cup, and surrounded by its enlarged leaflets, which are converted into remote, foliaceous, spatulate, rigid, reflex wings; 1-celled, and 3-valved. The seed is solitary, thin, membranaceous, thickened along one side, and contained between the interior fold of the cotyledons.

The camphor is found, as already observed, in a solid state, occupying portions of about a foot, or a foot and a half, in the heart of the tree. The natives, in searching for the camphor, make a deep incision in the trunk, about fourteen or eighteen feet from the ground, with a billing or Malay axe; and when it is discovered, the tree is felled, and cut into junks of a fathom long, in order to allow of the extraction of the crystalline masses. There are a race of men, styled *Toongoo Nyr-Cappoor*, who pretend to have the power of distinguishing those trees in which the crypta are large and full, from those, the felling of which would be unprofitable toil. Many, however, are mutilated without avail, notwithstanding the pretensions of the seers, and sometimes the cavities are found with a pitch like matter, instead of camphor and fragrant oil. The same trees yield both the concrete substance and a liquid or oily matter, which has nearly the same

properties as the camphor, and is supposed to be the first stage of its formation. The product of a middling sized tree, is about eight China *catties*, or nearly eleven pounds, and of a large one, double that quantity. The Camphor thus found is called *Se Tantong*.

Qualities and Chemical Properties.—Camphor is imported into this country in chests and casks, chiefly from Japan, in small granular, or friable masses, and is afterwards purified by sublimation, in low flat-bottomed glass vessels, placed in sand, for that purpose. It is usually obtained in large cakes, concave on one side, and convex on the other, and generally perforated. It has a strong, peculiar, fragrant odour, and a bitter, acrid taste. It is white, transparent unctuous to the touch, easily frangible, exhibiting a foliated or crystalline structure. It is not altered by exposure to the atmospheric air; but if it be not kept in well-stopt vessels, especially during warm weather, it evaporates completely. When sublimed in close vessels, it crystallizes in hexagonal plates or pyramids. It is somewhat ductile, but may be pulverized by moistening it with alcohol, and triturating it till dry. It is insoluble in water; but it communicates to that liquid a certain portion of its peculiar odour. It swims on water, its specific gravity being 3.9887. It dissolves readily in alcohol, and is precipitated again by water. It is also soluble in ether, acetic acid, the diluted mineral acids, the fixed and volatile oils, and unites with and converts the resins into a soft tenacious mass. When heat is applied to camphor it is volatilized; when heated under pressure, it melts at 288°, and boils at the temperature of 403°. It is decomposed by the strong sulphuric acid, forming artificial tannin; and by repeatedly distilling it with nitric acid, camphoric acid is obtained. When exposed to a strong heat it is decomposed, and resolved into a volatile oil, carbonic and camphoric acids, and carburetted hydrogen, a portion of carbonaceous matter remaining. According to Dr. Ure's analysis, camphor is composed of one atom of oxygen, nine of hydrogen, and ten of carbon.

Camphor, or a substance analogous to it, exists in several other vegetables besides the Laurus and Dryobalanops; as mint, thyme, marjoram, and many other plants, and is held in solution by the essential oils obtained from them; Zea tells us that in South America he found a tree, from the bark of which camphor exudes in the form of tears.

Medical Properties and Uses.—There is still some difference of opinion respecting the action of camphor on the animal system; by some it has been regarded as a stimulant, while others maintain that it possesses considerable sedative powers. Its primary operation is that of an excitant, but its stimulant action is not very considerable. In moderate doses it increases the heat of the body, softens and increases the fulness of the pulse, and excites diaphoresis. In a large dose, it diminishes the force of the circulation, induces sleep, and sometimes produces delirium, vertigo, convulsions, or coma—effects which are best counteracted by wine and opium. As a stimulant, camphor has been used in typhus, cynanche maligna, malignant measles, confluent small-pox, and other febrile affections accompanied with debility; in gangrene combined with wine and bark; and in various spasmodic diseases; as hysteria, asthma, chorea, and epilepsy. As a sedative, it has been employed for allaying pain and irritation in pneumonia, acute rheumatism, small-pox, gout, mania; and inflammatory fevers, where evacuations have been previously employed. In these cases, it is usually combined with antimonials and nitre. It is employed externally in frictions, dissolved in oils, alcohol, or acetic acid, as an anodyne in rheumatism and muscular pains, and as a discutient in bruises and inflammatory affections. In collyria, it is of advantage in opthalmia, and is sometimes added to enemas to relieve the uneasy sensations occasioned by ascarides. Combined with opium, it is useful as a local application in tooth-ache.

Dose.—From gr. v. to ℈j. diffused in almond emulsion.

Off. Prep.—Mistura Camphoræ, L. D. Emulsio Camphorata, L. E. D. Tinct. Camph. comp. L. E. D. Acid. Acetos. Camphoratum. E. D. Linim. Camphoræ, L. E. D. Lin. Camphoræ, comp. L. Lin. Hydrarg. L. Lin. Saponis, L. E. Lin. Sapo. c. Opio, E. D.

1. Capparis spinosa. 2. Capparis rupestris.

CAPPARIS SPINOSA.—THE COMMON CAPER.

CAPPARIS RUPESTRIS.—ROCK CAPER.

Class XIII. POLYANDRIA.——Order I. MONOGYNIA.

Natural Order, CAPPARIDEÆ.—THE CAPER TRIBE.

Sepals 4, either nearly distinct, equal, or unequal, or cohering in a tube, the limb of which is variable in form. Petals 4, cruciate, usually unguiculate and unequal. *Stamens* almost perigynous, very seldom tetradynamous, most frequently arranged in some high multiple of a quaternary number, definite or indefinite. *Disk* hemispherical, or elongated, often bearing glands. *Ovarium* stalked; *style* none, or filiform. *Fruit* either pod-shaped and dehiscent, or baccate, 1 celled, very rarely 1 seeded, most frequently with 2 polyspermous placenta. *Seeds*, generally reniform, without albumen, but with the lining of the *testa* tumid, attached to the margin of the valves; *embryo* incurved; *cotyledons* foliaceous, flattish. *Herbaceous plants shrubs* or even *trees*, without true stipula, but sometimes with spines in their place. *Leaves* alternate, stalked, undivided, or palmate. *Flowers* in no particular arrangement.

Capparis Rupestris, unarmed; leaves roundish, fleshy, deciduous; pedicles 1 flowered, solitary, longer than the leaves. Native of Crete and Mycon on rocks by the sea side. Flowers large, with white petals and red stamens.

Capparis Spinosa, stipulas spinose, hooked; leaves ovate roundish, deciduous; pedicles solitary, 1 flowered. Native of southern and eastern Europe on walls and rocks. In the Grecian islands on rocks by the sea side. There is a variety with abortive stipulas and ovate leaves, which are more or less hoary. Flowers white, tinged with red on the outside; filaments red. The flower bud of this plant is the well known pickle the *Caper*.

The chief supply of caper buds is from Sicily, but the plant is cultivated in the neighbourhood of Toulon in orchards, in the intervals between fig and olive trees, and in the neighbourhood of Paris, where it is trained on low walls, and the shoots during the winter laid down and covered with earth, to protect them from the frost. This plant is cultivated on a large scale between Marseilles and Toulon, and in many parts of Italy. The plant is raised from suckers or cuttings, which are planted about 10 feet distance from each other. They require shelter from severe winds, and favourable exposure to the sun, and scarcely ever suffer from drought or heat. In spring they need only one dressing; in autumn they are cut down to within six inches of the ground, and covered with the surrounding earth, which is raised about them on all sides. In the succeeding spring they are laid bare to the crown of the stump, and they soon throw out fresh shoots. In the early part of the summer they begin to flower, and a succession of them continues till they are destroyed by the cold of the advancing winter. In this country it is generally treated as a frame plant, though it has stood the winter in the open air in some situations. A plant stood near a century against the wall of the garden of Camden House, Kensington; it produced many flowers annually, though the young shoots were frequently killed to the stump during winter. As a pickle, the flower buds of the caper are in great esteem throughout Europe. In Italy the fruit is prepared in the same way as the flower buds; both are bitterish, acrid, and aromatic to the taste. In the Isles of the Mediterranean, and near Toulon, the flower buds of the caper are gathered while very young, for as they enlarge they decrease in value; this forms a daily occupation for six months, while the plants are in a flowering state. As the buds are gathered they are thrown into a cask among as much salt and vinegar as is sufficient to cover them, and as the quantity of capers is increased more vinegar is added. When the caper season closes, the buds are then sorted according to their

size and colour. The smallest and greenest being the best, are separated and put into small casks of fresh vinegar for commerce. They will in this state keep fit for use for many years. It is said to be a common practice to put filings of copper in the first pickle to give the buds a green colour. The best capers are called *nonpareils* and the second best *capacines*. The *caper* is called in France *caprier*, in Italy *capriolo*, or cappero, and in German *Kapernstrauch*. Capers have the character of being anti-scorbutic, and of removing hepatic and other obstructions; but the part of the plant which has been chiefly recommended for medicinal purposes, is the bark of the root. *Dichlamydeous Plants by George Don, F.L.S.*

The following account is from that curious and interesting work Gerard's Herbal.

The Caper groweth in Italy, Spaine, and other hot regions, without manuring, in a lean soile, in rough places amongst the rubbish, and vpon old walls, as Dioscorides reporteth.

Theophrastus writeth,—That it is by nature wilde, and refuseth to be husbanded, yet in these our dayes diuers vie to cherish the same, and to set it in dry and stony places. Myselfe at the impression hereof planted some seeds in the bricke walls of my garden, which as yet doe spring and grow green; the success I expect.

Capers, or the floures not yet fully growne, be of temperature hot, and of thin parts; If they be eaten green they yield very little nourishment, and much lesse if they be salted: and therefore are rather a sauce and medicine, than a meat.

The Vertues.—They stir up an appetite to meat, are good for a moist stomacke, and stay the watering thereof; cleansing away the flegme that cleaueth vnto it. They open stoppings of the liuer and milt: with meat they are good to be taken of those that haue a quartan ague and ill spleens. They are eaten boiled (the salt first washed off) with oile and vinegar, as other sallads be, and sometimes are boiled with meat.

The rinde or bark of the root consisteth of diuers faculties, it heateth, clenseth, purgeth, cutteth and digesteth.

This barke is a singular remedie for hard spleenes, being outwardly applied, or inwardly taken: and the same boiled with vinegar or Oxymel, or beaten and mixed with other simples, expelleth thick grosse humors, and conveyeth away the same mixed with bloud, whereby the milt or spleen is helped; and the pain of the huckle bones taken away: more ouer, it bringeth downe sicknesses and draweth flegme out of the head, as *Galen* writeth.

The same bark (as Dioscorides teacheth) clenseth sores, and scoureth away the thicke lips and crusts about the edges, and being chewed it takes away the tooth-ache.

Professor Burnett says, the caper is raised with us by sowing the seeds upon old walls, where they take root betwixt the bricks, and endure for many years. The bark of the root (cortex capparis) is pretty thick, of an ash colour, with several transverse wrinkles on the surface; cut in slices and laid to dry, it rolls up into quills. This bark has a bitterish acrid taste; it is reckoned aperient and diuretic.

The chief consumption of the caper in this country is as an ingredient in sauces to be eaten with boiled meats especially mutton.

For the following receipts we are indebted to Meg Dod's Cookery Book. Take two table spoonsful of capers and a little vinegar. Mince the one half, and stir the whole of them into a half pint of melted butter, or of strong thickened gravy. To prevent the butter from oiling, stir the sauce for some time. When wanted very poignant, lemon juice may be added to this simple and tasteful sauce, or it may be flavoured with tarragon or burnt vinegar, instead of plain vinegar. If for fish, steak, &c., a little essence of anchovy will be found an improvement with pepper and salt to taste.

Mock Caper Sauce is made of gherkins or nasturtiums cut in bits with lemon juice and melted butter; and also radish seed-pod.

Capsicum annuum?

CAPSICUM ANNUUM.——ANNUAL CAPSICUM, OR GUINEA PEPPER.

CLASS V. PENTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, SOLANEÆ.——THE NIGHTSHADE TRIBE.

GUINEA PEPPER grows naturally in both the Indies. It appears to have been long known in this country, being mentioned by Gerarde; but the date of its introduction has not been precisely ascertained. It is frequently cultivated in our gardens as an ornamental plant, and also for the sake of the young pods or berries, which make a favourite pickle. The flowers appear at the same time with the fruit, and are produced from July to September.

The plant rises two feet high; is herbaceous, crooked, much branched, and has a smooth, striated, somewhat angular stem. The leaves are ovate, acuminate, smooth, entire, of a dark green colour, and stand irregularly on long foot-stalks. The flowers are solitary, petioled, proceed from the axillæ of the leaves, and of a dirty white colour: the calyx is persistent, tubular, and divided into five short segments; the corolla is synpetalous, wheel-shaped, consisting of a short tube, divided at the limb into five segments, which are spreading, pointed, and bent inwards at the margin: the filaments are five, shorter than the corolla, with oblong anthers; the germen is ovate, surmounted by a slender style, which is longer than the filaments, and terminated by a blunt stigma. The fruit is a long pendulous inflated pod or berry, smooth, shining, of a crimson or yellow colour, two-celled, containing a whitish spongy pulp, and numerous flat kidney-shaped seeds.

This species of capsicum varies greatly in the size, form, and colour of its berries. In some instances they are long and conical, or short and obtuse; in others, heart-shaped, bell-shaped, or angular; they vary also in colour, being generally of a bright red, but sometimes orange or yellow.

CULTURE.—The annual capsicums are propagated by seeds, which must be sown upon a hot-bed in the spring; and when the plants have six leaves, they should be transplanted on another hot-bed, at four or five inches distance, shading them in the daytime from the sun until they have taken root, after which they must have air freely admitted to them in warm weather, to prevent their running up weak. Towards the end of May, the plants must be hardened, by degrees, to bear the open air; and in June must be carefully taken up; preserving as much earth about their roots as possible; planting them into borders of rich earth; observing to water them well, and shading them till they have taken root; after which time, they will require no other management, but to be kept free from weeds, and in very dry seasons to refresh them three or four times a week with water. They will flower the end of June and July, and their fruit ripens in autumn.

When we gaze on the gorgeous colours of a tropical plant, we naturally think of the climates where it springs up without the aid of culture; imagination makes but few steps from the little to the great; and the pod of a capsicum is sometimes enough to transport us into the glowing scenery of the two Indies. What reader, and still more, what botanist, has not at times wished to wander in the land of the aloe, the palm, the fig, the orange, the cocoa, and the pomegranate! How delightful to cull the wild flowers of a region where every thicket is adorned with plants, which in England, if they exist at all, exist only by the sickly aid of the stove! The painted plumage of the birds, the gales that breathe perfume, and, in short, the luxuriance of nature in all her varied modes, might seem to leave nothing to desire. But, alas! the picture has its dark side, for India is not Paradise. That thicket is the lair of the tiger; each blast which passes over yonder swamp carries fever on its wings. The European, shattered by disease, has little relish for the landscapes around him; and as he tosses on his couch, sighs for the green lanes of his boyhood. The botanist, on the other hand, whose destiny confines him to the less brilliant scenery of Britain, wanders with greater safety, and probably with greater pleasure. The changes of our English climate are to be complained of by

the wasted invalid, but not by the hearty and weather-proof gatherer of plants. While he enjoys a "fine fresh May morning" with as keen a relish as old Walton's *Piscator*, he bears up against the sterner phases of our spring with the elasticity which health and eager pursuit so naturally confer. Indeed, if we might trust the anonymous author of the following sonnet, this same plant-gathering is so captivating, that your gatherer sometimes forgets for a while the smiles of beauty which await him at home. But this we think a libel on botanists, and have no doubt that the poet, when he composed it, was merely indulging in the agreeable license of his guild.

HERBCRAFT.

The botanist, from morn to dewy eve,
Treads the thick forest, and the grassy bank;
And surely would he deem it sore unthank
To Flora sweet, his grateful task to leave,
Ere the shrill bat hath chirped the parting day,
And sleepy flowrets shut their gorgeous lids.
Then to his homely cot he wends his way,
With spoil deep-laden; bright-eyed Daphne chides
His absence: yet so graciously doth blame
Issue from rosy lips with silver sound,
That every soul might wish just such a dame
To chide within his dwelling might be found;
For happiness, if more than empty name,
Is love, by love of nature circled round.

Economical Uses. All the species yield a spice of the most pungent quality, but the well-known condiment sold under the name of Cayenne Pepper is prepared from the fruit of the Capsicum baccatum, or Bird-pepper, which is a shrubby plant, of humble growth, not unlike the present species, but producing small ovate berries. These are gathered when ripe, and dried in the sun, pounded, and mixed with salt. The composition is then put into stopped bottles, and is commonly known by the name of "Cayan Butter."

A mixture of sliced cucumbers, eschalots or onions, cut very small; a little lime juice, or madeira wine; with a few pods of bird-pepper well mashed and mixed with the liquor, seldom fails to excite the most languid appetite in the West Indies, where it is called *man-dram*. A useful and elegant condiment is made by dissolving common salt in a strong infusion of capsicum, previously strained, and afterwards allowing it to crystallize.

Qualities and Chemical Properties.—Capsicum is of a fiery hot, somewhat aromatic taste, and has an extremely pungent odour. Precipitates are produced in the infusion of capsicum, by infusion of galls; nitrate of silver; oxymuriate of mercury; acetate of lead; the sulphates of iron, copper, and zinc, ammonia, carbonate of potass, and alum: but not by sulphuric, nitric, or muriatic acid.

Adulterations.—Red lead, which is sometimes mixed with powdered capsicum, may be detected by digesting it in acetic acid, and adding to the solution sulphuret of ammonia, which will produce, if any lead be present, a dark-coloured precipitate; or the fraud may be discovered by boiling some of the suspected pepper in vinegar, and after filtering the solution, adding to it sulphate of soda, when a white precipitate will be formed, which, after being dried and exposed to heat, and mixed with a little charcoal, will yield a metallic globule of lead.[a]

Medical Properties and Uses.—Capsicum is a powerful stimulant, and is most advantageously given in atonic gout, in palsy, tympanites, dropsy, and in the debilitated stages of fever. From five to ten grains, in a pill, is the usual mode of administration; and although it is the hottest of all the peppers, it has but little tendency to affect the head: it is therefore a useful stimulant in some forms of dyspepsia. It may be advantageously combined with steel in scrofulous constitutions, and is much used as an adjunct to cinchona bark for intermittents. Its sensible effects are heat in the stomach, and a general glow all over the body, without much affecting the pulse; and as a gargle it cleans, without impeding the healing of the ulcers of the fauces. The pods are sometimes employed as an ingredient in rubefacient cataplasms for the feet, to relieve the coma of fever; chronic ophthalmia is sometimes benefitted by a weak infusion; but the gargle, when used in sore-throat, has occasionally produced violent inflammation, not easy to be controlled.

Dose.—From twelve drops of the tincture to half a drachm: and 3ij. to half a pint of water, form a good gargle.

Off. Prep.—Tinctura Capsici. *L. D.*

[a] Accum; Thomson.

Matonia Cardamomum?

ALPINIA VEL MATONIA CARDAMOMUM.

THE LESSER OR MALABAR CARDAMOM.

CLASS I. MONANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, SCITAMINEÆ.——THE GINGER TRIBE.

Fig. (*a*) the partial panicle with its germ and flower viewed in front; Fig. (*b*) the cardamon pod.

THE Lesser or Malabar Cardamom has a whitish perennial, annulated, tuberous root, sending off many long slender fibres. The cultivated plant does not flower till it is four years old. The stems which emerge from the root, are tuberous, clubbed, and jointed at the base for two or three inches; the lower part giving out viviparous shoots, the upper part panicles. They are erect, and tapering as the continued sheaths send off the leaves; when in bearing, they are from six to ten feet high, and from eight and twelve to thirty in number, smooth, with varying shades of glossy green, and pale at the base; which distinguishes this species from a congener frequent on the same site, but with a red or fuscous base. The leaves are alternate and sheathing, elliptic-lanceolate, pointed, from nine inches to two feet and a half long, and from one to five inches broad, spreading, dark green, smooth, entire, pale sea-green beneath, and glossy above, with a silky softness. The midrib of the leaf on the upper surface is channelled, on the under keeled. The flowers are in panicles, which issue laterally from the tuberous jointed base of each stem near the root. The panicles are much branched, jointed, a span long, smooth, many-flowered, and spread horizontally on the ground. The bracteas are alternate, ovate, oblong, acute, at the base of each partial stalk, withering; the partial ones solitary, tubular, closely embracing the germen and calyx, almost as long as the latter, and resembling it in shape, but deciduous. The calyx is monophyllous, double, tubular, cylindrical, and 2 or 3-cleft at the margin. The corolla is monopetalous, and funnel-shaped; tube longer than the calyx, cylindrical, slender, curved; outer limb in three equal, oblong, recurved segments, inner a somewhat obovate, large, notched crenate, undivided lip, with a short claw. The filament is stout, erect, with a lanceolate, acute, horizontal lobe, simply notched at the summit, without any crest or extension beyond the anther, which consists of two oblong, distant lobes, about half the length of the filament. The germen is inferior, nearly globular, having a slender thread-shaped style lying close to the filament between the lobes of the anther, and bearing a funnel-shaped, obtusely triangular stigma. The capsule is 3-celled, with three cariaceous valves; when fresh it is fleshy, smooth, elliptic-oblong, or somewhat ovate, but becoming bluntly triangular, coriaceous and pale brown, when dried. The seeds are numerous, roundish, somewhat angular, rough, each enveloped in a fine membranous evanescent tunic. The receptacle is central, shorter than the capsule, when dry, and originally connected with the central ridge of the valve.

The Cardamom Farms.—"The spots chosen for these," says Mr. White, "called in the Malabar language *Ela-Kandy*, literally signifying Cardamom plots, are either level or gentle sloping surfaces on the highest range of the Ghaûts, after passing the first declivity from their base. The extent of climate hitherto known in Malabar to produce them, lies between 11° and 12° 30′ north latitude, or thereabouts.

"The months of February and March, are, on account of the prevailing dry weather, selected by the cultivators as the most proper for commencing their labours, the first part of which consists in cutting down the large and small trees promiscuously, leaving of the former, standing at nearly equal distances, certain tall and stately individuals, adapted to afford that degree of perpendicular shade which experience teaches them to be most favourable for the future crops. The grass and weeds are then cleared away, and the ground disencumbered from the roots of the brushwood; the large trees lie where they fall; the shrubs, roots, and grass are piled up in different small heaps, and their spontaneous and gradual decomposition fertilizes the space they cover.

"The size of the Ela-Kandy is various. The largest Mr. White saw among fifty did not exceed sixty yards in diameter. Their form varies likewise, very commonly oblong or oval, but sometimes irregularly rounded. The variety in these respects is chiefly owing to the convenience of the standard or permanent trees for shade. Those with lofty, straight stems, extensive heads, and those that are in an adolescent state, and known to be long-lived, are preferred for this purpose, and left standing at fifteen or twenty yards from each other. Much more diminutive plots are also cultivated by a race of Hill people called *Kourchara* and *Cadura*, who are not exactly slaves, but locally attached, and acknowledging certain obligations of a feudal, and perhaps reciprocal kind, to the Nairs in the neighbourhood.

"After the operations now described, no further labour is bestowed for four years. At the revolution of the fourth rainy season, and towards its close, they look for a crop, and their hopes are rarely disappointed;

this first effort of nature is generally scanty: for instance, only one half of what is reaped the following year, and only one-fourth of what is yielded after the sixth rains, at which period the plant has reached its acme of prolific vigour. Now and then, however, this routine is interrupted, and its progress protracted, by causes of which they are not very solicitous to investigate the nature; they remark, however, excessive and interrupted rains to be one source of failure."

Mr. White, to whom we are indebted for the preceding account of the natural history of this plant and its cultivation, under the name of Amomum *Cardamomum*, in Trans. of Lin. Soc. vol. x. speaks of the seed as amongst the most important articles in modern luxury, and as "a grateful and salubrious necessary of diet." Its general use in Asia, indeed, renders the plant a very important and profitable object of culture, though the harvest, occuring at the most unhealthy season, is not unattended by serious dangers. Fevers, fluxes, the bite of innumerable minute leeches, (Hirudo *geometra*,) and the instantly fatal sting of the whipsnake, are mentioned as not uncommon mischiefs; to which is added the caustic quality of a shrubby plant, called by the native *Mouricha*, whose botanical characters have not been ascertained, but whose leaves produce dangerous and sometimes fatal ulcers of the skin. The profit of the Cardamom farms, however, is so considerable as to overcome all difficulties in their cultivation, and Mr. White thinks they might easily be greatly extended.

What the cardamom of the ancients was, it is now scarcely possible to determine. It is extremely probable, however, as Dr. Maton justly observes, that the article bearing that name in their materia medica, was not the common cardamom of our shops. The plant producing it was not satisfactorily made known, until the publication of the *Hortus Malabaricus*, in which the delineation of it is sufficiently striking. From the mistake made by Burmann, in referring to Bontius's Java (p. 126) for the true cardamom, appears to have originated the erroneous description and discordant references, on the subject of the cardamom in the works of Linnæus; the latter illustrious author having confounded the Javanese cardamom, Amomum *compactum* of Solander, with that of Malabar. In Java the plant grows wild in the woods, and is there called *kápalúga*, but its produce is much inferior to that of the Malabar cardamom. The plant is a native of Sumatra and other islands to the eastward of the bay of Bengal, and was sent, according to Dr. Roxburgh, (Flora Indica, p. 37,) to the botanical garden at Calcutta, where it blossoms in April. Dr. Francis Hamilton, in his Account of the Kingdom of Nepal, mentions a large fruited species of cardamom (Amomum?) which he found growing there, hitherto undescribed by botanists. The plant producing the greater cardamom seeds of commerce or Grains of Paradise, is the Amomum *Grana Paradisi* of Linnæus.

The officinal cardamoms are brought to this country from Bengal in cases, each containing about 120lbs weight. The seeds are dried and imported in their capsules, by which their flavour is better preserved.

Qualities.—These seeds have an extremely grateful aromatic odour, and a warm pungent taste. They communicate all their virtues to alcohol and ether, and nearly so to water. In distillation they afford an essential oil, which is pungent to the taste, and in this seems to reside all the active qualities. The watery infusion has a turbid appearance, and lets fall a flocculent precipitate, on the addition of alcohol, the acids, solutions of sulphate of iron, muriate of mercury, and acetate of lead; but the sulphate of iron does not alter its colour. The alcoholic tincture is rendered milky by water. The ethereal has a yellowish green hue, and, when evaporated on the surface of water, leaves neither resin nor extractive, but a considerable portion of essential oil, which has the flavour and taste of the seeds in perfection. Cardamoms, therefore, seem to be entirely composed of fecula, mucus, and essential oil.

Medical Properties and Uses.—Cardamom seeds have been long employed in medicine as a valuable cordial, carminative, and stomachic. They afford a grateful warm aromatic, less heating and stimulant than many of the other species, and are, perhaps, on this account better adapted for general use. They enter into several of the officinal preparations, and are frequently combined with bitters in dyspeptic cases, or with purgatives, to obviate flatulence and griping. In India these seeds are highly prized as an agreeable condiment, and their use as such is so universal, that they are now regarded as a necessary of life by most of the natives of Asia.

There are two tinctures of cardamoms in the British pharmacopœia, viz. a simple and a compound tincture; the first named, *Tinctura Cardamomi*, prepared by digesting for eight days three ounces of the bruised seeds in two pints of proof spirit. It possesses all the virtues of the seeds, and may be given in doses of one drachm to three. The other, named *Tinctura Cardamomi composita*, (formerly called *Tinctura stomachica*,) prepared by digesting for fourteen days two drachms of the cardamom seeds, two drachms of carraway seeds, two drams of cochineal, half an ounce of cinnamon, and four ounces of stoned raisins, in two pints of proof spirit. It would be an improvement in this preparation, as Dr. R. Pearson justly observes, if the proportion of cardamom seeds were increased, and if, instead of four ounces of raisins, one ounce of pulverized sugar-candy were to be added, after the digestion is over. Both these tinctures are often ordered in stomachic infusions, and joined with ether, opium, and other antispasmodics, and in gouty and spasmodic affections of the stomach. Among all the aromatics," says Dr. Parr, "there are none that answer so well, in general, as this simple tincture, for rendering mineral waters and other saline solutions easy and agreeable to the stomach."

Dose.—The dose in powder is from grs. v. to ℈i.

Dianthus caryophyllus.

DIANTHUS CARYOPHYLLUS.—THE CARNATION, OR CLOVE PINK.

Class X. DECANDRIA.—Order II. DIGYNIA.

Natural Order, CARYOPHYLLEÆ.—THE CHICK-WEED TRIBE.

We are indebted to Mr. Don for the following account of the Carnation:—Stem branched; flowers solitary; calycine scales 4, very short, ovate, rather mucronate; petals very broad, beardless; leaves linear-awl-shaped, channelled, glaucous. ♃. ♅. Native of the south of France; in England on old ruinous walls, particularly on Rochester, Deal, Sandown, and other old castles, plentifully on walls in Norwich, and other old towns. Flowers from single to double, white, yellow, purple, and variegated, indeed of all colours, blue excepted.

Var. β, flore pleno; flowers double, called *Carnation,* Sims' Bot. Mag. t. 89.

The flowers of the *Clove* are very variable in size and colour, the double varieties of which are called *Carnations,* and the smaller flower of the latter are called *Picotees.*

D. caryophyllus is considered the source whence have sprung the numerous varieties of the *Carnation* and the *Picotee.* The *Carnation* seems to have been unknown to the ancients, at least in its cultivated state, not being mentioned by Pliny, or sung by any of the Roman poets. It has, however, been cultivated from time immemorial in Europe, and is in the highest favour for its beauty and rich spicy odour. It is the principal florist's flower in Germany and Italy, from which countries the British florists procure their best Carnation seed, and also some esteemed varieties. The varieties amounted nearly to 400 named sorts in the beginning of the eighteenth century, and the number has not since diminished. They are arranged in three classes, *flakes, bizarres* and *picotees.* Flakes have two colours only, and their stripes large, going quite through the leaves of the flower. *Bizarres,* (Fr. odd, irregular,) are variegated in irregular spots and stripes, and with no less than three colours. Scarlet, Purple, and Pink, are the three colours most predominant in *Carnation,* the two first are seldom to be met with in the same flower, but the two last are very frequently. New varieties are procured from seeds, and thousands of seedlings are annually blown by florists and amateurs, sometimes without one being found worth keeping. Established or approved varieties are continued by layering or cuttings, or as they are commonly called pipings. The soil in which the *Carnation* thrives best is a rich loam rather sandy than otherwise; the climate should be free from extremes of every kind, for which reason they are commonly grown in pots, and protected by a frame during winter, and covered by an awning while in bloom. *Carnations* grow exceedingly well in beds of properly prepared soil, over which frames are placed in winter, and an awning of canvas or bunting when the plants are in blossom.

I remember a naturalist says, "The principal flower in a bouquet was a carnation, the fragrance of which led me to enjoy it frequently and near, while the ear was constantly assailed by an extremely soft but agreeable murmuring sound. I instantly distended the lower part of the flower, and, placing it in a full light, could discover, by a glass, troops of little insects frisking and capering with wild jollity among the narrow pedestals that supported its leaves, and the little threads that occupied its centre. What a fragrant world for their habitation! What a perfect security from all annoyance in the deep husk that surrounded their scene of action!

The microscope, on this occasion, had given what nature seemed to have denied to the objects contemplated. The base of the flower extended itself to a vast plain, the slender stems of the leaves became trunks of so many stately cedars, the threads in the middle seemed columns of massy structure, supporting at the top their several ornaments; and the narrow spaces between were enlarged into walks, parterres, and terraces.

On the polished bottom of these, brighter than Parian marble, walked alone, in pairs, or in large companies, the winged inhabitants, stained with living purple, and with a glossy gold that would have made all the labours of the loom contemptible in the comparison. There were the perfumed groves, the more than myrtle shades of the poet's fancy; here the happy creatures spent their days in sportive gaiety; or, in the triumph of their little hearts, skipped after one another from stem to stem among the trees, or winged their flight to the close shadow of some broader leaf, to revel undisturbed in the heights of felicity.

The Carnations, Maiden-pinks, &c. have been celebrated both for their beauty and fragrance; in the latter they are equalled by few plants, exceeded perhaps by none. As the rose for her beauty, the nightingale for his song, so is the pink noted for its sweetness.

"And the pink of smell divinest,"

is seldom or never forgotten when the poets would celebrate the charms of Flora;

" The brave carnation then, with sweet and sovereign power,
(So of his colour called, although a July-flower,)
With th' other of his kind, the speckled and the pale;
Then th'odoriferous pink, that sends forth such a gale
Of sweetness: yet in scents is various as in sorts,
The purple violet then the pansie there supports;
The mary-gold above t' adorn the arched bar:
The doubled daisy thrift, the button bachelor,
Sweet-William, sops in wine, the campion, and to these,
Some lavender they put, with rosemary and bays."

Spenser's works are continually sprinkled with them: both Milton and Shakespeare have done them honour:

" Per. Sir, the year growing ancient,—
Nor yet on summer's death, nor on the birth
Of trembling winter,—the fairest flowers o' the season
Are our carnations, and streaked gillyflowers,
Which some call nature's bastards: of that kind
Our rustic garden's barren; and I care not
To get slips of them.
Pol. Wherefore gentle maiden,
Do you neglect them?
Per. For I have heard it said,
There is an art, which, in their piedness, shares
With great creating nature.
Pol. Say there be,
Yet nature is made better by no mean,
But nature makes that mean."
Winter's Tale, Act iv, *Scene* iii.

Spenser continually speaks of this flower by the name of Sops-in-wine. Drayton also uses this name for them;

"Sweet-Williams, campions, sops-in-wine,
One by another neatly."

And Ben Jonson:

" Bring corn-flag, tulip, and Adonis-flower;
Fair ox-eye, goldy-locks and columbine,
Pinks, goulands, king-cups, and sweet sops-in-wine;
Blue hare-bells, paigles, pansies, calaminth,
Flower-gentle, and the fair-haired hyacinth:
Bring rich carnations, flower-de-luces, lilies,
Bright crown imperial," &c.

This term seems to have been confined to a particular variety, since Drayton distinctly mentions the Carnation, the Pink, Sweet-William, and Sops-in-wine.

It has been observed that the word Dianthus signifies Jove's flower; but in English the name is gnerally confined to the Pink, commonly so called; which gives occasion to Cowley to make a facetious remark upon the distinction.

" Sweet-William small has form and aspect bright,
Like that sweet flower that yields great Jove delight;
Had he majestic bulk, he'd now be styled
Jove's flower: and if my skill is not beguiled,
He was Jove's flower when Jove was but a child.
Take him with many flowers in one conferr'd,
He 's worthy Jove e'en now he has a beard."
Cowley on Plants, Book iv.

Criterion of a fine double Carnation.—The stem should be strong, tall, and straight; not less than 30 inches or more than 45 inches high; the footstalks supporting the flowers should be strong elastic, and of a proportionate length. The flower should be at least 3 inches in diameter, consisting of a great number of large, well-formed petals, but neither so many as to give it too full and crowded an appearance, nor so few as to make it appear thin and empty. The petals should be long, broad, and substantial, particularly those of the lower or outer circle, commonly called the guard leaves, these should rise perpendicular about half an inch above the calyx, and then turn off gracefully in an horizontal direction, supporting the interior petals, and altogether forming a convex and nearly hemispherical corolla. The interior petals should rather decrease in size as they approach the centre of the flower, which should be well filled with them. The petals should be regularly disposed alike on every side, imbricating each other in such a manner as that both their respective and united beauties may captivate the eye at the same instant; they should be nearly flat, however, a small degree of concavity or inflection at the broad end is allowable, but their edges should be perfectly entire, that is to say, free from fringe or indenture. The calyx should be at least one inch in length, terminating in broad points sufficiently strong to hold the narrow bases of the petals, in a close and circular body. Whatever colours the flowers may be possessed of, they should be perfectly distinct, and disposed in long, regular stripes, broadest at the edge of the lamina, and gradually becoming narrower as they approach the unguis or base of the petal, there terminating in a fine point. Each petal should have a due proportion of white; *i. e.* one half or nearly so, which should be perfectly clear and free from spots.

Cassia fistula

CASSIA FISTULA.—LAXATIVE CASSIA.

CLASS X. DECANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, LEGUMINOSÆ.—THE PEA TRIBE.

Fig. (*a*) represents the pod or legume; (*b*) a longitudinal section of the same, showing the position of the seeds; (*c*) two views of a seed.

THIS species of Cassia is a native of Egypt and the warmer parts of the East Indies, and is naturalized in the West Indies, and South America. It is the Cassia *solutiva* of the Arab and Greek physicians of the middle ages, as appears from the writings of Avicenna and Myrepsus, and is supposed to have received the same generic appellation as that which from time immemorial has distinguished the oriental aromatic spice, from the circumstance of its agreeable odour; for we are told by Alpinus, when he was in Egypt, in the latter part of the 16th century, that the natives took great delight in walking early in the morning, in the spring season, near plantations of this kind of Cassia, regaling themselves with the fragrance of the flowers. The Cassia *fistula* was cultivated in England by Philip Miller, in 1731. Dr. Hasselquist, who observed it on the banks of the Nile, growing among the date trees, near Alexandria, says it flowers in May; and the Arabs call it *Hearsciambar*. Bruce asserts, that it is a native of Abyssinia.

It rises, when full grown, to the height of thirty or forty feet, and is branched towards the top. The bark, especially upon the trunk, is brownish, or ash-coloured, very much furrowed and cracked. The wood is white and soft. The leaves are alternate, pinnated, composed of five or six pairs of ovate-oblong, pointed, undulated leaflets, of a pale green colour, finely nerved with a prominent midrib underneath, and supported on short footstalks. The flowers are large, odorous, yellow-veined, and produced in long pendant axillary racemes. The calyx consists of five oblong, blunt, greenish, crenated leaves. The corolla is composed of five petals, which are concave, roundish, unequal, spreading, and waved. The germen is slender, cylindrical, and curved into a semicircle. The fruit is a long woody dark brown pod, about an inch in diameter, and nearly two feet in length, cylindrical, with two longitudinal furrows on one side, and one on the other, divided by thin plates or partitions into transverse cells, each containing one smooth, oval, compressed seed, of a dusky yellow colour, imbedded in a soft black pulp.

The pods are said to undergo a kind of fermentation, to prepare them for keeping. In Egypt, according to Hasselquist, they are collected before they are quite ripe, and carried into a very close room, in which has been prepared a bed of palm leaves and straw, six inches deep. On this they lay the pods in a heap: the door is then closely shut, and the next day they sprinkle water on the heap, which is repeated the day following. In this manner the pods lie heaped for forty days, till they become black. Others, says he, dig a hole in the ground to put them in; but this method is greatly inferior to the former. Cassia pods are brought to this country principally from the West Indies, packed in casks and cases. The pods of the East India Cassia are smaller, smoother, and afford a blacker, sweeter, and more grateful pulp, than those which are brought from the West Indies, South America, or Egypt.

QUALITIES.—The pulp, which is the part used, is separated from the woody part and seeds, by passing it through a sieve. It has a faint, somewhat nauseous odour, and a sweet mucilaginous taste.

QUALITIES AND CHEMICAL PROPERTIES.—The pods of Cassia which are heaviest, and in which the seeds do not rattle, are the best, as they contain the greatest quantity of pulp, which is the part used in medicine. The best pulp is of a bright, shining black colour, and of sweetish sub-acid taste. According to M. Henry, it contains sugar, gum, a substance resembling tannin, gluten, and colouring matter soluble in ether.—*Journ. Chim. Med.* ii. 376.

MEDICAL PROPERTIES AND USES.—Both the leaves and flowers are purgative, as well as the pulp. The latter is occasionally used as an agreeable laxative for children; but adults require so large a portion of it to produce any effect, that it is never employed for them, excepting when combined with more active remedies. Dr. Cullen conceived that it possessed no advantages over the pulp of prunes, in which opinion we readily coincide. It enters into the composition of the subjoined officinal preparations, to which it imparts a pleasant flavour.

Confectio Cassiæ, L. E. D.
Confectio Sennæ, L. E. D.

We are indebted for the following passages to William Howitt's interesting work on the Seasons.

If the contrast of grey and mossy branches, and of the delicate richness of young leaves gushing out of them in a thousand places be inexpressibly delightful to behold, that of one tree with another is not the less so. One is nearly full clothed,—another is mottled with grey and green, struggling as it were which should have the predominance, and another is still perfectly naked. The wild cherry stands like an apparition in the woods, white with its profusion of blossom, and the wilding begins to exhibit its rich and blushing countenance. The pines look dim and dusky amid the lively hues of spring. The abeles are covered with their clusters of albescent and powdery leaves and withering catkins; and beneath them the pale spathes of the arum, fully expanded and displaying their crimson clubs, presenting a sylvan and unique air. And who does not love "the wood-notes wild?" We again recognise the speech of many a little creature who, since we last heard it, has traversed seas and sojourned in places we wot not of. The landscape derives a great portion of its vernal cheerfulness not merely from the *songs* of birds but from their cries. Each has a variety of cries indicative of its different moods of mind, so to speak, which are heard only in spring and summer, and are both familiar and dear to a lover of Nature. Who ever heard the *weet-weet* and *pink-pink* of the chaffinch, or the *winkle-winkle* of the black-bird as it flies out of the hedge, and skims along before you to a short distance, repeatedly on a summer evening about sunset,—at any other time? In spring mornings by three or four o'clock the fields are filled with a perfect clamour of bird-voices, but at noon the wood is their oratory. There the wood-pecker's laugh still rings from a distance—the solemn coo of the wood-pigeon is still deep and rich as ever—the little chill-chall sounds his two notes blithely on the top of the tallest trees; and the voice of the long-tailed titmouse, ever and anon, sounds like a sweet and clear-toned little bell. Nests are now woven to every bough and into every hollow stump.

As the month (May,) advances, our walks begin to be haunted with the richness of beauty. There are splendid evenings, clear, serene, and balmy, tempting us to continue our stroll till after sunset. We see around us fields golden with crow-foot, and cattle basking in plenty. We hear the sonorous streams chiming into the milk-pail in the nooks of crofts, and on the other side of hedges. Towards the close of the month, the mind, which has been continually led onward by the expansion of days, leaves, and flowers, seems to repose on the fulness of nature. Every thing is clothed. The *spring* actually seems past. We are surrounded by all that beauty, sunshine, and melody which mingle in our ideas of *summer*. The hawthorn is in full flower; the leafy hedges appear half-buried in the lofty grass. Butterflies take their wavering flight from flower to flower; and dragonflies on the banks of rivers. There is the cheerful hum of bees amongst the flowers; and the cockchafer, which has delighted us all in our boyhood, is hovering about the green leaves of the sycamore. Sheep-washing is begun in many places. The mowing-grass presents a mosaic of the most gorgeous and inimitable hues, or is white with waving umbels. A passing gale awakens a scene of lively animation. The massy foliage of trees swings heavily, the boughs of the hawthorn wave with all their loads of fragrant bloom, and snowy umbelliferous plants toss on the lea like foam on the stormy ocean.

Cottage gardens are now perfect paradises; and, after gazing on their sunny quietude, their lilachs, peonies, wall-flowers, tulips, anemones and corcoruses with their yellow tufts of flowers, now becoming as common at the doors of cottages as the rosemary and rue once were—one cannot help regretting that more of our labouring classes do not enjoy the freshness of earth, and the pure breeze of heaven, in these little rural retreats, instead of being buried in close and sombre alleys. A man who can, in addition to a tolerable remuneration for the labor of his hands, enjoy a clean cottage and a garden amidst the common but precious offerings of nature, the grateful shade of trees and the flow of waters, a pure atmosphere and a riant sky, can scarcely be called poor.

If Burns had been asked what was the greatest luxury of May, I suppose he would have quoted from his "Cotter's Saturday Night,"

> If Heaven a draught of heavenly pleasure spare,
> One cordial in this melancholy vale,
> 'Tis when a youthful, loving, modest pair
> In other's arms breathe out the tender tale
> Beneath the milk-white thorn that scents the evening gale.

At which Gilpin would quote, from his "Forest Scenery," a passage proving the poets to be very foolish for their admiration of so insignificant and inelegant a bush. We, however, shall take part with Burns, only we would conjure a nightingale into his hawthorn, and the hawthorn into a forest; for of all May delights, listening to the nightingale is the greatest, and when heard at still midnight, the moon and stars above you, filling with lustre the clear blue sky; the trees lifting up their young and varied foliage to the silvery light; the deer quietly resting in their thickest shadows; and the night-breeze, ever and anon, wafting through the air "Sabean odours;" then, if you feel neither love nor poetry, depend upon it you are neither lover nor poet.

Ricinus communis.

RICINUS COMMUNIS.—PALMA-CHRISTI, OR CASTOR OIL PLANT.

Class XXI. MONŒCIA.—Order VIII. MONADELPHIA.

Natural Order, EUPHORBIACEÆ.—THE EUPHORBIUM TRIBE.

Fig (*a*) represents an anther; (*b*) a *female* flower, with the prickles removed, showing the calyx, and the insertion of the stamens; (*c*) a prickle, (*d*) the capsule, (*e*) the back view of the seed, (*d*) the side view of a seed.

The Castor-oil plant, from the seeds of which the oil is obtained, grows spontaneously in many tropical districts. In our gardens it is well known as a tall annual plant: it is found native in almost every part of the East and West Indies, South America, and China. In Africa, the Palma-Christi, which seldom rises more than four or five feet high in England, attains the size of a considerable tree. Clusius observed it in Spain, with a trunk as large as a man's body, and fifteen or twenty feet high. Ray asserts, that in Sicily it is as large as the common elder-tree, woody, and perennial. Willdenow, however, expressly says, "Planta semper annua, nunquam fruticosa vel arborea, nec in calidissimis terræ plagis lignescit."

The root is thick, whitish, and furnished with many slender fibres. The stem, as we have already observed, varies in height; it is round, thick, jointed, smooth, of a purplish red colour towards the top, and glaucous at the lower part. The leaves are on long tapering purplish footstalks, large, subpeltate, and deeply divided into seven acute, serrated, lanceolate lobes, of a blueish green colour. The flowers are in long, green, glaucous spikes of a blueish green colour, springing from the divisions of the branches, and appear in August and September; the males occupy the lower part of the spike, the females the upper. The *male* flower is destitute of a corolla, and consists of a calyx divided into five oval, pointed, purplish segments, inclosing several long stamens united at the base; the *female* flower is composed of a calyx cut into three narrow segments of a reddish colour; the styles are three, slender, and forked at the apex. The capsule is trilocular, covered with rough spines, and bursts elastically to expel the seeds; the seeds are usually three, of an oblong flat figure, and greyish colour, with brownish red streaks.

The scientific name Ricinus, is said to have been bestowed on the present genus, from the fancied resemblance of its seeds to the small apterous insect called a *tick*, ricinus; and this, according to Ainsworth, is compounded of *res* and *canis*, because the tick or tyke, is particularly troublesome to dogs. It is generally regarded as the Κικι or Κροτων of Dioscorides, who observes, that the seeds are powerfully cathartic. It is likewise mentioned by Aëtius, Paulus Ægineta, Pliny, and other ancient authors; hence this species of Ricinus appears to have been known at a very early period; and we are informed by Turner in his Herbal, that it was cultivated in England in 1562.

Dierbach informs us, that the plant was known to Hippocrates under the name Κροτων; and Dr. Ainslie says, the castor-oil plant grows in great abundance in almost every part of India. It is one of but few examples of an expressed oil possessing medicinal activity. The London College order the oil to be obtained by expression, a method, which according to Mr. Long in his History of Jamaica, is employed there, when it is intended for medical use. The expressed oil is, however, more acrimonious, and less pure, than that which is imported from the West Indies, which is obtained in the following manner:—"The seeds being freed from the husks, which are gathered upon their turning brown, and when beginning to burst open, are first bruised in a mortar, afterwards tied up in a linen bag, and then thrown into a large pot, with a sufficient quantity of water, and boiled till the oil has risen to the surface, when it is carefully skimmed off, strained, and kept for use."

The oil obtained by coction, has, however, the disadvantage of becoming rancid, sooner than that procured by expression. The seeds yield about one-fourth of their weight in oil.

Qualities and Chemical Properties.—Castor oil is of a pale yellow colour, is transparent, viscid, and has little taste or smell. It leaves, however, a slight burning in the throat, after it has been swallowed. That obtained by boiling, becomes rancid much sooner than that procured by expression. It is often adulterated, says Dr. Thomson, with olive oil, linseed oil, and poppy oil, which may be readily detected by adding an equal quantity of *alcohol*, sp. gr. 820 to any given quantity of the suspected oil; if it be pure, a uniform solution will take place, which will not happen if it be adulterated: and the same will be the case if a weaker spirit be employed, by the addition of camphor. Excepting that it is soluble in alcohol, it has all the characters of other expressed oils. Boiled in nitric acid, it is converted into a sort of wax, which melts too readily to be used for making candles.

Poisonous Effects.—Three drams of the seeds of Palma Christi, deprived of their ligneous envelope, were introduced into the stomach of a dog of middle size; and the œsophagus was tied. The next day he showed no remarkable symptoms. The day following, at eight o'clock in the morning, he experienced very

severe vertigoes; it was impossible for him to walk without falling: he did not moan, At noon, he laid on his side, in great insensibility, his inspirations were few and deep; the pulsations of the heart natural. He died at two o'clock.

Dissection.—The mucous membrane of the stomach was not red, but exhibited some small ulcers, the centres of which were black; the lungs, though crepitating, contained a small quantity of venous blood. —*Orfila.*

Medical Properties and Uses.—As a laxative, castor oil acts so mildly and speedily, that it is often resorted to in obstinate constipations, and diseases where irritation by other purgatives would be injurious. Unlike all other purgative medicines, its dose may be often lessened, when the patient is in the habit of taking it. Many of the planters in the West Indies, burn the oil in their lamps.

Dose.—From half an ounce to an ounce and a half, which may be taken floating on peppermint water, to which can be added a little tincture of senna, if necessary. Sometimes it is formed into an emulsion, by means of mucilage or the yolk of an egg. To prevent nausea or griping from it, a little rum is often employed in the West Indies. The most pleasant mode of administration is to float the oil on a little warm milk, and immediately after swallowing it to wash the mouth with a small quantity of the same fluid; no disagreeable taste is then perceived.

"Let us next take a glance," says an ingenious writer, " upon the silver Thames, and how many recollections does it not excite? What luxury, what vice, what improvement, what sources of human joy and human misery has it not from time to time borne on its bosom! How many sufferers have not rashly sought an asylum in its wave!—how many a verse does it almost now repeat of Pope, or of Gray! All these associations, however, are more connected with the passions than those which arise from gardens or from flowers. In the latter, while the mind enlarges, the passions are stilled; devotion excites our associations, and through nature, we look up to nature's God! The knowledge that all these various colours and odours will decline in certain seasons, produces in us no anxious emotions, because experience shews the colours will bloom again, and the perfumes give their breathings to the winds. On the contrary, when we behold a ruin—even the simplest monument of ancient grandeur, we heave a sigh over the fate of empires, and feel the hand of time already beginning to press heavily on our being. The humblest rivulet or cottage can awaken tender associations, as may be found every day, and are perhaps more strikingly remarkable in the case of St. Pierre, Gray, and Marmontel. The sight of an old man playing upon an harp, by recalling to the recollection of Gray the massacre of the minstrels by Edward the First, prompted him to leave us one of the finest odes in the English language; and Marmontel was led to write the Shepherdess of the Alps by a view of a picturesque cottage at Cheveniere, which so charmed him, that it called forth those delightful associations every where communicated in that interesting tale. The scenes among which our early years were passed, offer many sources of joyous reflection; joys shared by the greatest and the basest of mankind—we need not mention the names of Tasso or Spenser, in the former catalogue, nor of a Dioclesian in the other. He who knows not the power of association, knows not half the happiness this world can give him, notwithstanding all the complaints which are every day made against it. In forming many of those associations the soul expands—our nature takes a higher rank, and while they may be but the results of education, they are some of the highest satisfactions of our life-time. He can have no poetry in his soul, and no feeling for beauty in his heart, who is dead to their allurements. But we do not now intend entering so generally upon the subject of association.—There are occasions when we could dispense with its influence; but they are still occasions not the less favourable to moral impressions and results. The temple—the tomb—our native spot—our common country—the field of victory or defeat—the animal or vegetable, and the soil of their production, call up associations of various influence; but there are general appearances of nature, which may afford nothing worthy of excitement to the vulgar mind, and yet to philosophic eyes present subjects of peculiar import and delight!

If gardens and flowers thus call up such associations, let us turn for a moment and see their analogies to particular affections, strikingly exemplifying the general harmony which subsists throughout the universe. It is from similar analogies that the heavenly bodies are considered symbols of majesty; the oak as an emblem of strength, the olive of peace, and the willow of sorrow. The yellow-green, which is the robe of nature at the close of autumn, was the emblem of chivalry in despair—guilt and anger are designated by red —green is the badge of tranquillity—and brown occasionally of melancholy, as well as health. The violet has long been regarded as the emblem of modesty—the myrtle, of love—the tulip, of vanity—the mulberry, of prudence—the rose, of beauty—the palm, of honour—and the laurel, of victory. Vigour of body and mind were, in elder times, represented by branches of palm, and the white violet designated love. The amaranth was an emblem of immortality; and Milton has told us, it bloomed in the garden of Paradise, but on man's disobedience, adds, it was removed to heaven, where it still grows, and with crowns of which, he has supposed every angel to be bound.

Erythræa Centaurium

ERYTHRÆA CENTAURIUM.—COMMON CENTAURY.

Class V. PENTANDRIA.—Order I. MONOGYNIA.

Natural Order, GENTIANEÆ.——THE GENTIAN TRIBE.

This elegant annual grows spontaneously in most parts of Britain, in dry gravelly pastures, and in woods; flowering in July and August. Dr. Milne found it in great abundance in Charlton Wood, near the seven mile-stone, on the lower road to Woolwich; in the meadows about Eltham and Sidcup; in Shooter's Hill Wood; and in the chalk-pits at Northfleet. We also observed it plentifully in Birch Wood, Kent. A white variety was gathered by Mr. Lawson, near the medicinal well at Cartmel, in Lancashire; and is affirmed by the editor of the third edition of Ray's Synopsis, to be pretty common in Kent and in the Isle of Sheppey. It occurs generally throughout Europe, as far northward as Sweden.

The plant rises from a small woody, fibrous root, to the height of ten or twelve inches. The stem is slender, erect, angular, leafy, sometimes branched at the upper part, and when very luxuriant, from the base also. The leaves grow close to the stalk, in pairs, tending upwards, and are pointed, ovate, or elliptic-lanceolate. Those next the root are numerous, obovate, and form a tuft near the ground: they are all smooth, ribbed like those of plantain or soap-wort, and of a bright green colour. The flowers, which open in the day-time and shut at night, are disposed in a beautiful more or less dense panicle, at the extremity of the forked branches. They have a smooth striated, 5-cleft calyx, about half the length of the tube of the corolla, whose limb is of a brilliant pink or rose-colour, rarely white, and divided into five elliptical spreading segments, succeeded by an oblong cylindrical capsule, that opens by two valves, disclosing a number of small seeds. The filaments are thread-shaped, and furnished with oblong, yellow anthers, which become spiral or threetimes twisted, after bursting, as represented by fig. *a*, on the plate. The germen is oblong, bearing a straight style, with a roundish bifid stigma.

The genus Erythræa, so named from the red colour of most of the flowers, contains four British species. It differs from Chironia, (which was originally appropriated to an African genus,) in habit, in the long tube and short limb of the corolla, and in other less important characters. The term Centaurium was bestowed on this species in honour of Chiron the Centaur, the celebrated preceptor of Achilles, who by the testimony of Pliny, (l. xxv. c. 6,) cured with it Hercules's foot, which had been wounded with a poisoned arrow.

Qualities. The flowering tops are principally used in medicine; they are intensely bitter, without any peculiar smell. Their active powers are extracted both by water and alcohol. The decoction with water affords, by inspissation, a bitter extract.

Medical Properties and Uses. Common, or Lesser Centaury, as it is sometimes called, has long been celebrated for its medicinal virtues, and is justly esteemed as one of the most efficacious of our indigenous bitters. It is a useful stomachic and antiseptic, and before the discovery of cinchona, was much employed as a useful tonic, in the cure of intermittent and continued fevers. As a bitter, it may be given with advantage in dyspeptic complaints, and in all cases where that class of remedies is indicated. The tops enter as an ingredient into the Portland powder; once in the highest repute as a remedy against the gout, but now very properly discarded from medical practice. The extract agrees in its medical properties with that of gentian, and being less expensive, is perhaps preferable. The *dose* of the powder is from 3 ſs to ʒj; of the extract gr. v. to ϑj; of an infusion, made by macerating ℥ij of the dried tops in lb. ſs. of boiling water, ℥ij may be taken three or four times a day.

The following extract is from the British Naturalist. "The charm of a summer's morning is in the upland, and the extensive view; they who have never beheld the rising sun from a mountain top, know not how fair the world is. Early though it be, there is a sentinel upon the heath; a shrill whistle comes sharp and clear upon the morning breeze, which makes all the echoes of the west answer. But be not alarmed, there is no danger; no guerilla, not even a solitary robber, upon the British uplands; and the eagle and the raven are yet in the rocks, and reynard just leaving his earth in the coppice below. That whistle is his reveillé, to warn those birds that nestle among the grass in the heath, that the enemy is coming abroad. It is the note of the plover.

The place to be chosen for a view of sun-rise on a summer morning is not the centre of a mountain ridge—the chine of the wilderness; but some elevation near the sea coast,—the eastern coast, where, from

a height of about two thousand feet, one can look down upon the chequered beauty of the land, and the wide expanse of the ocean; where the morning fog is found white and fleecy in the valleys along the courses of the streams, and the more elevated trees and castles, and houses, show like islands floating in the watery waste; when the uplands are clear and well defined, and the beam gilds yet higher peaks, while the streak upon the sea is of that soft purple which is really no color and every color at the same time. The whole landscape is so soft, so undefined, and so shadowy, that one is left to fill up the outlines by conjecture; and it seems to get more indefinite still as the sun comes nearer the horizon. The dews feel the coming radiance, and they absolutely ascend by anticipation. At length there is one streaming pencil of golden light, which glitters and breaks as if it were the momentary lightning of a cloud; the dew drops at your feet are rubies, sapphires, emeralds, and opals, for an instant; and then it is gone. If the horizon be perfectly clear, this "blink" of the rising sun (and we have observed it only on such occasions as that alluded to) has a very curious effect. It comes momentarily, and when it is gone, all seems darker than before. But the darkness is of as brief duration as the light, and the rising grounds are soon brought out with a power of *chiar' oscuro*—a grouping of light and shade, that never can be observed when the sun is at any height, as the shadow is from eminence to eminence, filling all the hollows; and, though deep, it is remarkably transparent, as evaporation has not yet begun to give its fluttering indistinctness to the outlines of objects. By the time that half of the solar disc is above the horizon, the sea is peculiarly fine, and it is better if the view be down an estuary. If the distant offing it is one level sheet, more brilliant than burnished gold, in which the boats, with their dark lug sails, as they return from the deep sea fishing, project their streaky shadows for miles, though each seems but a speck. The lands on the opposite sides of the estuary pay their morning salutations, in soft breezes wafted across, as the sun touches a point of the one here, and of the other there; for the summer sun no sooner beams out upon one part of the landscape than the little Zephyrs from all the others hasten thither to worship, so instantly does the genial beam put the atmosphere in motion; and as those Zephyrs come from more moist places, there is absolutely dew upon the parched heights at sun-rise, if they be not too extensive. Those cross winds rippling the water this way and that way, give an opal play to the whole; while behind you, if the estuary stretches that way, it passes into a deep blue, as from the small angle at which the rays fall, they are all reflected forward; and the very same cause that makes the water so brilliant before you, gives it that deep tint in your rear. By and by, the trees and buildings in lateral positions come out, with a line of golden light on their eastern sides; while to the west every pane in the windows beams and blazes like a beacon fire. The fogs, too, melt away, except a few trailing fleeces, over the streams and lakes, that lie sheltered beneath steep or wooded banks; and they soon fade from these also, and the mingled fields, and woods, and streams, are all arrayed in green and gold. The cottage smokes begin to twine upward in their blue volumes; the sheep are unfolded; the cattle sent to their pastures; and people begin the labor of the fields."

We will conclude with a few stanzas to an elegant flower which blooms in July, from "May you like it."

To the Bellflower.

With drooping bells of clearest blue
Thou didst attract my childish view,
Almost resembling
The azure butterflies that flew
Where on the heath thy blossoms grew
So lightly trembling.

Where feathery fern and golden broom
Increase the sandrock cavern's gloom
I've seen thee tangled,
'Mid tufts of purple heather bloom
By vain Arachne's treacherous loom
With dewdrops spangled.

'Mid ruins tumbling to decay,
Thy flowers their heavenly hues display,
Still freshly springing,
Where pride and pomp have passed away
On mossy tomb and turret gray,
Like friendship clinging.

When glow-worm lamps illume the scene
And silvery daisies dot the green,
Thy flowers revealing,
Perchance to soothe the fairy queen,
With faint sweet tones on night serene
Soft bells are pealing.

But most I love thine azure braid,
When softer flowers are all decayed,
And thou appearest
Stealing beneath the hedgerow shade,
Like joys that linger as they fade,
Whose last are dearest.

Thou art the flower of memory;
The pensive soul recalls in thee
The year's past pleasures;
And led by kindred thought, will flee,
Till, back to careless infancy,
The path she measures.

Beneath autumnal breezes bleak,
So faintly fair, so sadly meek,
I've seen thee bending,
Pale as the pale blue veins that streak
Consumption's thin, transparent cheek,
With death hues blending.

Thou shalt be sorrow's love and mine,
The violet and the eglantine
With Spring are banished.
In Summer pinks and roses shine,
But I of thee my wreath will twine,
When these are vanished.

Cinchona condaminea

CINCHONA CONDAMINEA.—LAUREL-LEAVED CINCHONA.

Class V. PENTANDRIA.—Order I. MONOGYNIA.

Natural Order, CINCHONACEÆ.—THE CINCHONA TRIBE.

Fig. (*a*) exhibits a flower cut open; (*b*) germen and pistil; (*c*) capsule; (*d*) section of the same.

Although it is probable that several species of this important genus afford the Peruvian bark of the shops, of these three only are admitted into our national pharmacopœias, to which the specific names of *lancifolia*, (the *condaminea* of Humboldt and Bonpland,) *oblongifolia*, and *cordifolia*, have been applied, designating respectively, the pale, the red, and the yellow bark. Twenty-seven species have been described by botanists as natives of South America, the Phillippine, the West India, and the South Sea Islands.

The Cinchona is described by Baron Humboldt as a lofty, handsome, evergreen tree, from thirty to forty feet in height, and standing generally single, and exuding, wherever it is wounded, a yellow, astringent juice. The trunk is about eighteen feet in height, and fifteen inches in diameter, erect, with a cracked ash-coloured bark. The branches are round, in opposite pairs, erect, brachiated, with the younger ones obscurely quadrangular at the sides. The leaves are of a bright green, shining, ovate-lanceolate, about three inches long, petiolate, with a little pit in the axillas of the nerves, or the under surface, which is filled with an astringent aqueous fluid, and having the orifice shut with minute hairs; they stand on short foot-stalks, one sixth of their length, flat above, and convex below; but the form of the leaf varies extremely, so that no specific distinction can be derived from their figure alone. The stipules are two, acute, sericeous, contiguous, and caducous. The panicles are terminal, branched, leafy, and trichotomous. The flowers are of a pale rose colour, furnished with little bracteas, and are produced in terminal, brachiated, leafy, trichotomous panicles, supported on round peduncles and pedicles, that are powdered and silky. The calyx is bell-shaped, globular, five-toothed, powdered, and silky, like the peduncles, with the teeth ovate, acute, very short, and contiguous. The corolla is somewhat salver-shaped, longer than the calyx, with the tube obscurely five-angled, silky, frequently of a rose-colour; the limb wheel-shaped, with linear-lanceolate segments, much shorter than the tube, white, and woolly above. The anthers are twice the length of the free portion of the filaments. The germen is globular, with an erect style, and bifid stigma. The capsule is ovate, woody, striated longitudinally, crowned with the calycinal teeth, two-celled, many-seeded, oppositely twice furrowed, and opening from the base to the apex with two valves.

Cinchona bark appears to have been long known as a medicine in Peru; but we have no satisfactory account at what period, nor by what means, the febrifuge virtues of this valuable remedy were first discovered. Some say, a patient had been cured of an intermittent fever by having drank the waters of a lake, which had acquired a bitter taste from Cinchona trees which had lain in them; others, that a lion had cured himself of the ague by instinctively chewing Cinchona bark, and had directed the attention of the Indians to this tree. "That animals," observes Humboldt, in his 'Dissertation on the Cinchona Forests of South America,' "have taught men, is a very common form of the traditions of nations. The valuable antidote *Bijuco del guaco*, a plant described by Mutis, which is related to the *Mikania*, and has been erroneously confounded with the *Ayapana* of Brasil, is also said to have attracted the notice of the Indians, as is affirmed of the Falco *serpentarius*, by the Falco *guaco* of New Granada fighting with serpents. However, that the great American lion, without mane, Felis *concolor*, should be subject to the ague, is just as bold an hypothesis as the assertion of the inhabitants of the pestilential valley, Gualla Bamba, near the town of Quito,) that even the vultures, Vultur *aura*, in their neighbourhood, were subject to that disorder."

"The story, so often copied, respecting the Countess Chinchon, vice-queen of Peru, is probably still more doubtful than it is generally supposed to be. There certainly was a Count Chinchon, Don Geronimo Fernandez de Cabrera Bobadella y Mendoza, who was Viceroy of Lima, from 1629 to 1639. It is very probable that his wife, after her return to Spain, in 1640, was the first who introduced the Cinchona bark into Europe. In Loxa, an old tradition is current, that the Jesuits, at the felling of the wood, had distinguished, according to the custom of the country, the different kinds of trees by chewing their barks, and that on such occasions they had taken notice of the considerable bitterness of the cinchona. There being always medical practitioners among the missionaries, it is said they had tried an infusion of the cinchona in the tertian ague, a complaint which is very common in that part of the country."

Cinchona bark is stripped from the trunk and branches in the dry season, from September to November; it is dried by exposure to the sun, and after being imported into Europe is sorted for sale. It is brought to this country in chests, each of which contains from one hundred to two hundred pounds weight of bark, mixed with dust and other impurities.

Qualities and Chemical Properties.—Few vegetable substances have undergone so many analyses, by the most eminent chemists, as the different varieties of Peruvian bark. The basis of all of them is woody fibre, combined with which are various principles capable of being extracted by different solvents. The taste of all is more or less bitter and astringent. Boiling water extracts all their active principles, affording a solution of a pale brown colour; this infusion is transparent when hot, but on cooling becomes turbid, and a precipitate is deposited, which is soluble in alcohol. The decoction has a very astringent

taste, and a deep brown colour, By long boiling, the virtues of the bark are nearly destroyed, owing to the chemical change and precipitation of its active matter.

From the experiments of Vauquelin, Fabroni, and others, it appears that the active principles of cinchonine, are resin, extractive, gluten, a very small portion of volatile oil, and tannin. Vauquelin has determined the presence of a peculiar acid, to which he gives the name of *kinic* acid, in some varieties of the bark. The following are the most important results that have been obtained by MM. Pelletier and Caventou, respecting the composition of the three officinal species:—1. In *pale bark*, they found acidulous kinate of cinchonine, a green fatty matter which they term red cinchonine, tannin, a yellow colouring matter, kinate of lime, gum, starch, and woody fibre. 2. In *yellow bark* they found that the alkaline base differs from cinchonine, in being uncrystallizable, very soluble in ether, and forming salts with the acids different from those formed by cinchonine. The chemical constituents of *yellow bark* are, an acidulous kinate of this salt, which they have named *quinine*, a deep yellow, fatty matter, red cinchonine, tannin, yellow colouring matter, kinate of lime, starch, and woody fibre. 3. *Red bark* contains acidulous kinate of cinchonine, kinate of quinine, reddish fatty matter, red cinchonine, tannin, kinate of lime, yellow colouring matter, starch, and woody fibre. The difference between the pale, the red, and the yellow barks, depends principally on the quantity of the two alkaline bodies, *cinchonine* and *quinine*, found in them. The pale bark contains cinchonine, but a very small portion of quinine; the alkali, again, which predominates in the yellow bark, is quinine, while in the red bark, and some spurious kinds, there is a combination of both these substances. The presence of cinchonine, as a distinct vegetable principle, was first discovered in Peruvian bark by Dr. Duncan of Edinburgh.

The separation of the *cinchonine* from the pale bark, and of the *quinine* from the yellow, is a very simple operation. It consists in digesting the bark, coarsely powdered in weak sulphuric acid, and then to repeat this digestion with about half the quantity of liquid, till all the soluble matter is extracted. To this decoction a small quantity of powdered slacked lime is added, somewhat greater than is necessary to saturate the acid; the precipitate that ensues (a mixture of cinchonine and the sulphate of lime) is collected, dried, and boiled for a few minutes in alcohol, which takes up the cinchonine, but will not dissolve the sulphate of lime; the solution is decanted off *while still hot*, and fresh portions successively added for the repetition of the same operation, until it ceases to act on the residuum, which is then merely sulphate of lime. The different alcoholic solutions are then put into a retort, and considerably evaporated, during which, and on cooling, acidular crystals of cinchonine are deposited. By repeating the solution once or twice in boiling alcohol, and again crystallizing, the cinchonine will be obtained in a perfectly pure state. It has an intensely bitter taste, and exerts the same action on the animal economy as the bark itself, but it is less generally used in medicine than the other active principle of bark, quinine, because the yellow bark from which it is procured is more plentiful; the quinine, therefore, is cheaper than cinchonine, and equally efficacious.

Quinine may be obtained from the yellow bark in the same manner as cinchonine is prepared from the pale bark, or by adding an alkali to a solution of the sulphate of quinine. Quinine is not crystallizable like cinchonine, but on the application of heat it melts into a kind of paste. It has a much more bitter taste than the other, and is very sparingly soluble in water.

The sulphate of quinine is frequently adulterated with starch, pipe-clay, and various other substances. To determine its purity, the simple process of heating it is sufficient; if it evaporate entirely, without charring and melting, it is pure; but if it should turn black, or smell sweetish, it is probable that sugar or starch is present.

Pure quinine is seldom used in medicine, but the sulphate possesses, in a very eminent degree, the medicinal properties of Peruvian bark, one grain or one grain and a half, being equivalent to a drachm of the bark in substance. It has superseded in a great measure the Peruvian bark, and is now extensively used in all cases where that valuable medicine is indicated, in doses of from two to five grains.

Medical Properties and Uses.—Peruvian bark has been long known as one of the most powerful and valuable tonics we possess, and may be administered with great freedom in all cases where that class of remedies is indicated. The only effects of an overdose, are headache and nausea. It also possesses antiseptic and astringent powers in a very eminent degree, and is universally employed as a febrifuge in the cure of intermittent and remittent fever, in diseases of debility, such as typhus, cynanche maligna, in passive hæmorrhages, confluent small-pox, in dysentery, in some cutaneous diseases, as lichen agrius and lividus, in purpura, in some varieties of erysipelas, in gangrene, in dyspepsia, and even in acute rheumatism and gout. The decoction of yellow cinchona bark given in large quantities, is the best antidote to the poison of tartar emetic.

Its usual *dose* is half a drachm. The only inconvenience of a larger dose is its sitting uneasy on the stomach. It may, therefore, if necessary, be frequently repeated, and in urgent cases may be taken to the extent of an ounce or even two ounces in twenty-four hours, though from such large doses probably no adequate advantage is derived. If it excite nausea, smaller doses may betaken and repeated more frepuently, and may be reconciled to the stomach by the addition of any grateful aromatic.

Off. Prep.—Decoctum Cinchonæ, L. E. D.
Infusum Cinchonæ, L. E. D.
Extractum Cinchonæ, L. E. D.
Ext. Cinchonæ resinosum, L. D.
Tinctura Cinchonæ, L. E. D.
Tinctura Cinchonæ, Comp. L. D.
Vinum Gentianæ, Comp. E.

Laurus Cinnamomum

LAURUS CINNAMOMUM.—THE CINNAMON TREE.

CLASS IX. ENNEANDRIA———ORDER I. MONOGYNIA.

NATURAL ORDER, LAURINEÆ.—THE LAUREL TRIBE.

LAURUS CINNAMOMUM, the bark of which yields the well known spice cinnamon, is a native of Ceylon, but it is cultivated in other parts both of the East and West Indies. Cinnamon seems to be confined to the torrid zone, or at least we have no good authority for supposing that it flourishes much beyond it. Spielman says, it is found in Tartary, and many authors have asserted that it grows in China. Spielman's assertion is now supposed to be incorrect; and Sir G. Staunton tells us that, with the exception of the camphor-tree, none of the laurel genus grows in China; nor does Osbeck include it in his "Flora Sinensis." It grows abundantly on the Malabar coast; the island of Sumatra, particularly about the Bay of Taponooly; Cochin China; Tonquin, where it is an article of Royal monopoly; the Sooloo; Borneo; Timor; the Nicobar and Philippine islands; the island of Floris, and Tobago. It has been cultivated in the Brazils, the isles of Bourbon and Mauritius, the Seychelle islands, Guadaloupe, Jamaica, and the northern Circars. The cinnamon plant was introduced into Guiana, in the year 1772, from the isle of France; subsequently it was transported into the Antilles. In Guiana, the inhabitants cultivate it in their gardens, and round their cottages. They prepare cinnamon sufficient for domestic purposes, and transmit a small quantity to France. Prior to the year 1790, it was introduced into Cayenne by the French government at a very great expense, and recommended to be cultivated by the colonists; cinnamon has been successfully grown in the island of Dominica by a M. Buée, where the same gentleman has succeeded in propagating the clove-tree.

The fullest account of the cinnamon-tree, and of the preparation of cinnamon, that we have seen in the English language, is by Henry Marshall, Esq., Staff Surgeon to the Forces in Ceylon, and the following details respecting the natural history and description of this valuable spice, are principally derived from his interesting paper, published in Thomson's Annals of Philosophy, vol. x. p. 241 and 346. The tree grows to the height of from 20 to 30 feet; has a slender trunk, from 12 to 18 inches in diameter, irregular, knotty, and covered externally with an ash-coloured, thick, rough, scabrous bark; innumerable branches shoot from the stem and give it the appearance of the Portugal laurel. The wood is light and porous like that of the osier, and is used for fuel. Shoots spring up from the roots in great profusion, and form a bush round the stem. The inner bark is reddish. The bark of the young shoots is often beautifully speckled with dark green and light orange colours. The root and branches exude abundance of camphor. The leaves, which stand in nearly opposite pairs on short slightly channelled petioles, are from six to nine inches in length, oblong, smooth, pointed, entire, and three nerved; the lateral nerves vanishing as they approach the point. The young leaves and tender shoots are of a bright red or liver colour, with yellow veins; the former as they acquire maturity become olive, then bright green, and before they fall olive yellow; mature leaves have a strong aromatic odour, and the biting hot taste of cloves. The flowers are in axillary and terminal panicles, white, inodorous, or perhaps somewhat fœtid. The petals are six, ovate, pointed, concave, and spreading; the filaments are in threes, shorter than the corolla, flattish, erect, the three innermost glanduliferous at the base, and the anthers are double. The fruit is an oval berry, larger than a black currant; when ripe, the skin is bluish-brown, thickly scattered with spots; beneath the skin is a greenish pulp, which is slightly acrid, has a terebinthinate odour, and a taste resembling that of the juniper berry. This pulp incloses a nut, which contains an oily, soft, pale rose-coloured, inodorous kernel. Crows and wood-pigeons devour the berries with great avidity; the productive quality of the seeds remains undestroyed, and by this means the plant is disseminated over a great extent of country, and is found even in the thickest and most impassable jungles.

Cinnamon is mentioned, Exod. xxx. 23, among the materials which composed the holy anointing oil; and in Prov. vii. 17, Cant. iv. 14, Eccles. xxiv. 15, and Rom. xviii. 13, among the richest perfumes. Our species of cinnamon is brought from the East Indies; but as there was no traffic with India in the days of Moses, it was probably obtained from Arabia, or some neighbouring country. We learn, also, from Pliny, that a species of it grew in Syria. "In Syria gignitur et cinnamomum quod caryopon appellant. Hic est succus nuci expressus, multum a surculo veri cinnamomi differens, vicina tamen gratia."—Nat. Hist. l.xii.c.38.[a]

Mr. Marshall, whose valuable contributions were published in the Annals of Philosophy, thinks it probable, that from the earliest ages Europe has been indebted to Ceylon for part of its supplies of this article. He thinks that it may have been exported, by small vessels belonging to the island, to the Malabar coast, and from thence to Sabea, on the south coast of Arabia, by the Arabs. Here the ships belonging to the mer-

[a] Salmasius has shown from the authority of MSS., that *camacon*, or *comacon*, is here to be read for *caryopon*. In Solinum, p, 922.

chants of Phœnicia and Egypt found large stores of the produce of India; and by this medium the demands from all Europe were supplied. The enormous expense incurred by transporting cinnamon such a circuitous route, must have greatly enhanced its price and prevented its very general use. On some occasions, however, the quantity consumed was considerable. At the funeral of Sylla, 210 burthens of spices were strewed upon the pile; and it is probable that cinnamon formed a great part of the spices used on this occasion, the produce of the Moluccas being then but little, if at all, known to the Romans. Nero is reported to have burned a greater quantity of cinnamon and cassia at the funeral of Poppœa than the countries from which it was imported yielded in one year.

In 1498 Vasco de Gama landed at Calicut. Indian commerce now took a different route, and the Portuguese supplied Europe with the articles which had formerly passed through the hands of the Venetians, Eager to engross the cinnamon trade, the Portuguese, early in the sixteenth century, arrived at Ceylon, and obtained leave to establish a factory, which led to the erection of the fort of Colombo. Shortly after the fort had been built, they concluded a treaty with the king of Kandy, wherein he agreed to furnish them annually with 124,000 pounds of cinnamon, in return for which they were to assist the king and his successors, both by sea and land, against all his enemies. The thriving settlements of the Portuguese in the East, eventually attracted the attention of the merchants of Holland. Soon after they had gained a footing in India, they became anxious to engross the cinnamon trade, and early in the seventeenth century found means to ingratiate themselves with the king of Kandy, who invited them to aid him in expelling the Portuguese from the islands. In 1612, the king engaged to deliver to the Dutch East India Company all the cinnamon he was able to collect. Peace was concluded between the Portuguese and Dutch in 1614. By this treaty a moiety of the trade was ceded to the Dutch. War commenced again in 1652. Colombo surrendered to the Dutch in 1656, and Jaffna, the last place of strength of the Portuguese, fell in 1658. After monopolizing the trade for many years, during which time they extirpated the trees in Malabar to enhance the value of the cinnamon of Ceylon, the Dutch found serious rivals in the Chinese, whose cinnamon is inferior to none. To check, therefore, this rivalship, and to render themselves independent of the king of Kandy, they began to cultivate the cinnamon on their own ground at Ceylon; and Dr. Thunberg, who visited Ceylon in 1778, informs us, that by the unwearied exertions of Governor Falck, exceedingly large plantations of cinnamon had been formed, and that the shoots of some of the early plantations had been already three times barked. Political altercations between the colonial government and the court of Kandy occurred about 1792, during which the peeling of cinnamon in the king's territory was greatly interrupted, and the governor declined to send an ambassador to obtain leave, as the king of Kandy required. By the year 1793, the propagation of the cinnamon plant had so far succeeded, that the governor was enabled to furnish the annual investment from the territory of the company, and in a letter to his successor, he congratulates him, that, in future, they would be under the necessity of flattering the court of Kandy. Ceylon was reduced by a British force in Feb. 1796, and in the latter end of 1797, 13,893 bales of cinnamon were sent to this country. By the treaty of Amiens, concluded in 1802, the Batavian republic ceded to his Britannic majesty all their possessions in the Island of Ceylon, which belonged before the war to the United Provinces. Soon after our countrymen became possessed of Ceylon, they became infected with the Dutch mania, and such serious alarm did they entertain that the market would be overstocked with cinnamon, the produce of the island, that the government, anxious to keep up its price, ordered many of the plantations to be rooted up. In July 1805, General Maitland assumed the government of Ceylon, and one of his first acts was to arrest the destruction of the plantations. He readily saw the propriety of encouraging and increasing the cultivation of cinnamon, and adopted means which have been followed with success. During this government, the annual investments continued gradually to increase, and many hundred acres of new ground were planted. Less dependance was now placed on the supply from the Kandian territory, which was always uncertain and subject to many impediments. To rival the excellence of the cultivated cinnamon of Ceylon, Dr. Marshall thinks it probable that the Dutch will cultivate it in Java, or some of its dependencies, and he strongly urges the propriety of exerting the powerful means, which circumstances have placed in our power, to cultivate, collect, and export a greatly increased quantity of this spice with the view of supplying the markets both of Europe and America; while the trade will be rendered less profitable to our rivals, and less encouraging to them to attempt to monopolize the commerce of this important article.

The ground for planting cinnamon is in the first instance prepared by cutting down the low brushwood and young trees. The lofty trees are allowed to remain, as the cinnamon is observed to thrive better under their shade, when not too close, than when it is exposed to the direct rays of the sun. The brushwood is collected into heaps, and burned. The planting commences when the seeds are ripe, generally during the months of June, July, and August. The workmen stretch a line upon the ground, along which they with a mammettee (hoe) turn up about a foot square of earth, at intervals of six or seven feet. The ashes of the

burned shrubs and branches of trees are then spread upon the spots of friable earth; and into each of them four or five cinnamon berries are planted with a dibble. Branches of trees are spread upon the ground, to prevent the friable earth from being scorched, and to protect the young shoots. The young shoots appear above the ground in about fifteen or twenty days. Sometimes the berries are sown in nurseries, and the shoots transplanted in the months of October and November.

In favourable situations the shoots attain the height of five or six feet in about six or seven years; and a healthy bush will then afford two or three shoots fit for peeling. Every second year from four to seven shoots may be cut from a bush in a good soil. Thriving shoots of four years' growth are sometimes fit for cutting.

As four or five seeds are sown in one spot, and as in most seasons many of the seeds germinate, the plants grow in clusters, not unlike a hazel bush. In seasons with little rain many of the seeds fail, and a great number of the young shoots die; so that it is frequently necessary to plant a piece of ground several times successively. A plantation of cinnamon, even on good ground, cannot be expected to make much return before eight or nine years have elapsed. The plantations from which a considerable part of the cinnamon is procured are Kaderang, Ekele, Marendahn (Colombo), and Morotta. These are styled protected plantations, to distinguish them from a number of extensive fields that were planted with cinnamon by the Dutch, and which have since been permitted to be overrun with creepers, brushwood, &c., and many of the cinnamon plants rooted up by the natives.

On an average of ten years the quantity of cinnamon deposited annually in the magazine at Colombo from the jungles and abandoned plantations of our own territory, including what has been collected in the Candian country, amounts to 1184 bales; and at Galle, during the same period, 935.

The peeling commences early in May, and continues until late in October. The rains which precede, and occur during the south-west monsoon, produce such a degree of succulency in the shoots as to dispose the bark and wood to part easily. The setting in of the rainy weather immediately produces a fresh crop of scarlet or crimson-coloured leaves.

The cinnamon harvest begins by dividing the peelers into small parties, which are placed under the directions of an inferior superintendent. When they are to peel in the plantations, each party has a certain extent of the plantation allotted to it. A few of the party cut shoots; while the remainder are employed in the wadu (or peeling shed) to remove the bark and to prepare the cinnamon. When the chaliah perceives a bush with shoots of a proper age, he strikes his ketta (which resembles a small bill-hook) obliquely into a shoot; he then gently opens the gash, to discover whether the bark separates easily from the wood. Should the bark not separate easily, the shoot or branch is not deemed fit for cutting. The chaliahs seldom trust implicitly to any external mark of the proper condition of the plant, and rarely try a shoot until the scarlet leaves have assumed a greenish hue. Some plants never acquire a state fit for decortication. Shoots of many years' growth often bear the marks of numerous annual experiments to ascertain their condition. Unhealthy, stunted plants, are always difficult of decortication; and the cinnamon procured from them is generally of an inferior quality.

Cinnamon prepared from the bark of very young and succulent shoots is rejected. It is light straw-coloured, thin, and almost without flavour or taste; and what little aroma it possesses is very evanescent.

Mildewed or half-rotten and smoky cinnamon is rejected. When the peelers are overtaken with rain at a distance from sheds, the bark they have previously collected ferments, becomes decayed, and inodorous. In such situations they frequently retire to caves, or very confined huts, where they kindle fires, to procure warmth and to dress their food. The smoke arising from these fires often greatly injures the bark, and renders it unfit to be manufactured into good cinnamon. To increase the weight, the peelers sometimes stuff the quill of cinnamon with sand or clayey earth, thick, ill-prepared pieces of bark, &c. &c. When these impositions are suspected, the quills are undone, often broken, and the foreign mixture removed.

This is one of the many causes which prevents the cinnamon from being in quills of nearly equal length. Cinnamon produced beyond the river Keymel on the north, and the Wallawey on the south, is generally condemned. It is light-coloured, greatly deficient in aromatic flavour, astringent, bitter, and has sometimes a taste similar to the rind of a lemon. Even between these limits the cinnamon produced differs greatly in quality. Differences of soil, and exposure, are very evident causes of a difference in the quality of cinnamon. Shoots exposed to the sun are more acrid and spicy than the bark of those which grow under a shade. A marshy soil rarely affords good cinnamon. It has often a pale yellow shade, approaching to the colour of turmeric. It is loose, friable, and gritty, and its texture cross-grained. It possesses little of the spicy taste of cinnamon. Very often, however, the cause of the inequality of this spice is not apparent; the bark of different shoots of the same bush have often very different degrees of spiciness.

That which is considered in Ceylon as of the best quality is of a light yellow colour, approaching nearly to that of Venetian gold; thin, smooth, shining; admits of a considerable degree of pressure and

bending before it breaks; fracture splintery; has an agreeable, warm, aromatic flavour, with a mild degree of sweetness. When chewed, the pieces become soft, and seem to melt in the mouth.

The first and second sorts are weighed, and put up into bundles, each weighing 92½ lbs. English. Each parcel or bale is firmly bound round with ropes, and then put into double gunnies.

The outside of the bale is marked with the number of the quality of the cinnamon, and the initial letter of the name of the protected plantation from whence it is procured. The bales of cinnamon which are procured in the neglected plantations, the woods of our own territory, or in the Candian country, are marked A. G. (Abandoned Gardens.) The Company export their cinnamon from Colombo, or Galle, and the interstices between the bales are filled with black pepper.

On some occasions the Ceylon government has directed oil to be extracted from the cinnamon, whose quality did not permit it to form part of the Company's investment. The process is simple: the bark is grossly powdered, and macerated for two days in sea-water, when both are put into the still. A light oil comes over with the water, and swims upon its surface, and a heavy oil, which sinks to the bottom of the receiver. The light oil separates from the water in a few hours; but the heavy oil continues to precipitate for ten or twelve days. The heavy oil, which separates first, is about the same colour as the light oil; but the portion which separates last has a browner shade than the supernatant oil. In future distillations the saturated cinnamon-water is advantageously used, added to sea-water, to macerate the cinnamon. Eighty pounds of newly-prepared cinnamon yield about two ounces and a half of oil, which floats upon the water, and five ounces and a half of heavy oil. The same quantity of cinnamon, if kept in store for several years, yields about two ounces of light oil, and five ounces of heavy oil.

The word cassia is by modern authors used in a variety of senses; but as they do not always define it, or explain the specific nature of the substance they intend to describe, it is often difficult to know what meaning they attach to the term, or to comprehend the nature of the article concerning which they have been writing.

The true cinnamon of commerce, according to Mr. Marshall, is the produce of young shoots of the cinnamon tree (Laurus *Cinnamomum;*) and cassia is the prepared bark of the *old branches of the same kind of tree.* Cassia is harder, and more woody than cinnamon. The ancients made use of this kind of bark; but we at present reject it.

The *cassia bud* of commerce is the fleshy hexangular receptacle of the seed of the *L. Cinnamomum.* When gathered young the receptacle completely envelops the embryo seed, which progressively protrudes, but is continually embraced by the receptacle. The buds have the appearance of nails, with roundish heads of various sizes. If carefully dried, the receptacle becomes nearly black, and the point of the berry light brown. The seeds contract by drying, and often fall out; the receptacle is then cup-shaped. When kept long, they have a dirty brown colour, and possess very little of the flavour of cinnamon. By distillation they yield an essential oil, not inferior to that of cinnamon bark.

Qualities and Chemical Properties.—Cinnamon bark has a reddish brown colour, and consists of long rolled pieces which splinter when broken. It has a pleasant aromatic smell, and a pungent but agreeable taste. Its properties are entirely owing to its volatile oil. This oil has a whitish yellow colour, and an extremely pungent taste and smell. It may be separated by infusing the bark in alcohol, and then separating the alcohol from the oil by distillation. When water is distilled off this bark it comes over milky, from the accompanying oil, which it retains with great obstinacy; very little separating till the mixture has stood a considerable time.

Medical Properties and Uses.—Cinnamon bark is one of the most grateful aromatic stomachics that we possess, and is stimulant, astringent, and tonic. It is principally employed, however, as an adjunct to other remedies, to prevent their griping effect, or to cover their nauseous taste. The oil, being a powerful stimulant, is sometimes employed to allay spasmodic affections of the stomach and bowels, hiccup, and nausea. It is also applied to relieve the pain of decayed teeth.

Off. Prep.—Aqua Cinnamomi. L.E.D.
Spiritus Cinnamomi. L.E.D.
Tinctura Cinnamomi comp. L.E.D.
Pulvis Cinnamomi comp. L.E.

Clematis Florida

CLEMATIS FLORIDA.——SIEBOLD'S CLEMATIS.

Class XIII. POLYANDRIA.—Order III. POLYGYNIA.

Natural Order, RANUNCULACEÆ.——THE CROW-FOOT TRIBE.

Character of the Genus Clematis. Calyx corolla-like, four-leaved, leaflets valvate, or somewhat induplicate, in æstivation. Stamens indefinite situate beneath the ovaria. Ovaria many, free, one-celled with one pendulous ovulum. Achenia many, sessile, caudate, with a naked or barbed style. Seed inverse.

Description of the species, Clematis Florida, var. Sieboldi. Stem round, angular, or grooved, covered with soft hairs; its habit is branched and twining, varying from six to twelve feet in height. Leaves petiolate-ovate, lanceolate, more or less acuminate, smooth, with the exception of the veins which are more or less hairy; leaves are sometimes opposite, sometimes arranged in threes; entire or laciniate; sometimes the leaves are wholly wanting, and in their place are substituted tendrils. Peduncles pubescent, in length various, those nearest to the flower usually about two lines long: those further removed from the flower, from one to two inches long. Pedicels pubescent, from two to four lines long. Flowers solitary, showy, large. Calyx of six whitish ovate lanceolate leaflets, acute, or ending in a sharp point, and alternately arranged. On the exterior side of the leaflets is a dark brownish green linear lanceolate streak, which runs from the apex to the base. Stamens, anthers, style, and stigma abortive, being metamorphosed into linear lanceolate leaflets, of a dark colour, and forming by that means what is called a double flower.

We borrow the following passages from the agreeable work to which we have been so often indebted, the Flora Domestica.

Clematis. Called frequently, virgin's bower or traveller's joy.—*French*, l'herbe au gueux [beggar's herb;] la viorne; viorne des pauvres [poor man's rest;] la consolation des voyageurs [traveller's consolation;] in the villages, vouabla, a corruption of the Latin name vitalba [white vine.]—*Italian*, vitalba; clematite. Clematis is derived from the Greek, and signifies a clasper. It fastens itself for support to any tree or twig within its reach.

These are, for the most part, climbing plants, needing support, and should be placed where they may run up a wall or balcony. They will not flower so strongly in pots as in the open ground; but must not, on this account, be rejected. The Evergreen Clematis would require to be planted in a tub of some magnitude: it grows to the height of eight or ten feet, and becomes very thick and bushy. The flowers are of a greenish colour, and appear in December or January. It retains its leaves all the year.—Gerarde gives it the name of Traveller's Joy of Candia; Johnson, Spanish Traveller's Joy; and Parkinson, Spanish Wild Climber.

Purple Clematis grows naturally in the woods of Spain and Italy: there are several varieties, the Single Red-flowered, Blue-flowered, and Purple-flowered, and the Double Purple; which flower in June, July, and August: and another with white flowers, which appear in May.—Gerarde gives this species the name of Climbing Ladies' Bower, "from its aptness," he says, "to make bowers or arbours in gardens."

The Curled Clematis is a native of Carolina, Florida, and Japan; the stalks grow near four feet high, and fasten themselves by their claspers or tendrils to the neighbouring plants. The flowers are purple, and blow in July.

The Oriental Clematis is a native of the Levant; it has flowers of a greenish yellow colour, which are in blossom from July till October.

The Upright Virgin's Bower or *Clematis Flammula*, (in French, *la flammule; clematite odorante:* Italian, *flammula:*) grows naturally in many parts of Europe. The flowers are white, and continue in blossom from June till September. This is an acrid, corrosive plant, and inflames the skin, whence it has been named *Flammula.*

"If one leaf," says Miller, "be cropped in a hot day in the summer season, and bruised, and presently put to the nostrils, it will cause a smell and pain like a flame."

The Hungarian Clematis has blue flowers, which are in blossom from June to August. This and the last mentioned species have annual stems.

All the kinds here enumerated, which are the handsomest, will live in the open air all the year. They should, in general, be watered about three times in a week, but in very hot and dry weather every evening.

There are some few species of the Clematis which require artificial heat, but they are by far the least handsome. The two last mentioned kinds may be increased by parting the roots, which should be done either in October or February. The roots may be cut through their crowns with a sharp knife, taking care to preserve some good buds to every offset.

The Clematis is as great a rambler as the Honeysuckle itself:—

" o'errun
By vines, and boundless clematis, (between
Whose wilderness of leaves white roses peep'd)
And honeysuckle, which, with trailing boughs,
Dropp'd o'er a sward, grateful as ever sprung
By sprinkling fountains."

BARRY CORNWALL.

Mr. Keats makes mention of the Clematis in a passage of which, as it relates entirely to flowers, it may, perhaps, be allowable to quote the whole. He describes a youth sleeping in a bower walled with myrtle:—

" Above his head
Four lily-stalks did their white honours wed,
To make a coronal, and round him grew
All tendrils green, of every bloom and hue;
Together intertwined, and trammel'd fresh:
The vine of glossy sprout; the ivy-mesh,
Shading its Ethiop berries; and woodbine
Of velvet leaves, and bugle blooms divine;
Convolvulus in streaked vases flush;
The creeper, mellowing for an autumn blush;
And virgin's bower, trailing airily,
With others of the sisterhood."———ENDYMION, p. 72.

This poet appears to allude to the Clematis and the Honeysuckle in the following passage:—

" The sweet-lipped ladies have already greeted
All the green leaves that round the window clamber
To show their purple stars, and bells of amber."

KEATS'S POEMS, p. 26.

Wherever a lattice is mentioned, the Clematis is expected to run over it:—

" In all the calmness of a cloudless eve,
How gently dies a long, long summer's day,
O'er yon broad wood, as loth to take its leave,
It sheds at parting its most lovely ray,
And golden lights o'er all the landscape play,
And languid zephyrs waft their rich perfume,
Where the wide lattice gives them open way,
And breathe a freshness round the twilight room,
From jasmine, clematis, and yellow-blossomed broom."

From an unpublished Collection by different Authors.

The following passages are from William Howitt's account of September, in his Book of the Seasons.

The wood-lark now having abandoned its summer music, may yet be heard uttering its fine wild autumnal note of *lu-lu, lu-lu, lu-lu,* on the distant uplands of our southern and western counties, particularly Devon and Cornwall, and amongst the hills of South Wales.

Finishing corn-harvest and thatching ricks; laying in winter fuel, as coals, wood, etc.; ploughing and sowing wheat upon the fallows, also after-crops of tares, clover, early peas, etc.; gathering in orchard-fruit for sale, and for cider-making, and gathering the hop harvest, are the chief employments of this month. We have spoken of the picturesque beauty of hop-gathering in the last month; but this month, in the hop counties, presents the most general scene of hop gathering. Throughout Kent and Sussex, long groups are everywhere to be seen pulling down the hop-poles covered with the bine in full flower, picking them into the bins, and conveying them away to the drying-kilns. In the hollows, and on slopes of the Kentish hills, the hop-grounds with their luxuriance of dark-green hop-vines hanging from the poles in masses of pale-green flowers, their picturesque knots of gatherers, men, women, and children,—all having turned out,—their homely cottages peeping here and there, and the drying-kilns sending up, at intervals, their wreaths of thin white smoke, altogether form a most cheering and true English sight. The whole country is odorous with the aroma of hop, as it is breathed forth from the drying-kilns, and from waggons piled with towering loads of hops already on their way to the metropolis. To those who meet for the first time the almost innumerable waggon-loads of hops at this season, thronging the roads from Sussex and Kent to London, and piled up in their huge pockets to an enormous height, it is a scene which excites astonishment; and does not fail to impress them with a vivid idea of the immense growth of this vegetable, and of its vast use in the cordial old English beverage—ale, and its more modern congener—porter. At this season, too, not only is the atmosphere perfumed with hop, but the very atmosphere of the dining and drawing room too. Hops are the grand flavour of conversation, as well as of beer. Gentlemen, ladies, clergymen, noblemen, all are growers of hops, and deeply interested in the state of the crop, and the state of the market.

We may add by way of conclusion a few lines from the delightful Poet of the Seasons:—

But see the fading many-colour'd woods,
Shade deepening over shade, the country round
Imbrown; a crowded umbrage, dusk, and dun,
Of every hue, from wan declining green
To sooty dark. These now the lonesome Muse,
Low-whispering, lead into their leaf-strown walks,
And give the Season in its latest view.

The Clematis, having been used by impostors to make sores, is the emblem of *artifice.*

Eugenia caryophyllata.

EUGENIA CARYOPHYLLATA, OR CARYOPHYLLUS AROMATICUS, THE CLOVE SPICE TREE.

CLASS XII. ICOSANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, MYRTACEÆ.——THE MYRTLE TRIBE.

Fig. (*a*) the fruit. Fig. (*b*) a section of the fruit.

THE Clove-tree is originally a native of the Moluccas; and the well-known spice was for a long period the staple commodity of Amboyna, one of the principal of these islands. The lucrative trade arising from this valuable article of medicine, or of luxury, was entirely, and still is principally, in the hands of the Dutch, who guard their monopoly with the most illiberal jealousy. Cloves are only produced in perfection in Amboyna, and the neighbouring islands; but to prevent smuggling, and to make their command of the market more secure, they have been at the utmost pains to extirpate the clove-trees from all the other islands, and to confine the culture of them to Amboyna alone. Notwithstanding, however, the vigilance of the Dutch to secure to themselves a monopoly in this valuable spice, the French obtained some plants, which they carried to the Isle of Bourbon, about the year 1770, and thence to Cayenne, from whence its cultivation has extended to the West Indies. The clove was introduced into the Royal Gardens at Kew, in 1797, by the Right Hon. Sir Joseph Banks.

The clove-spice is produced on a very handsome tree, somewhat resembling a large pear-tree. The trunk is from fifteen to thirty feet high, a foot thick, divided into branches, four or five feet from the ground, which are slender, opposite, usually horizontal, and form a dense, pyramidal head. The leaves are opposite, persistent, somewhat coriaceous, about four inches long, with a strong mid-rib, and parallel lateral nerves; ovate-lanceolate, quite entire, smooth on both sides, reddish and rather shining above, paler underneath, sprinkled with minute resinous dots, and tapering at the base into a slender foot-stalk, nearly two inches long, which according to Sonnerat is the most aromatic part of the plant. The flowers are odorous, from nine to fifteen or more on a branch, in short terminal panicles, trichotomously divided, and jointed at every division. The calyx. which is superior, consists of four ovate, concave, spreading segments, at first green, but afterwards becoming red. The petals are four, ovate, concave, yellowish-red, larger than the calyx, coherent by their edges, and forming a calyptra which is caducous. In the centre of the calyx, and occupying the top of the germen, is a quadrangular elevated line, into which the stamens are inserted, surrounding the base of the shortish obtusely subulate style. The filaments are numerous, much longer than the petals, bearing small yellow ovate-cordate anthers. The germen is inferior, oblong, 2-celled, with twenty ovules in each cell; all of which, as stated by Professor Hooker, become abortive, or *one* or *two* prove fertile, and by their great enlargement destroy the rest of the ovules, and obliterate the distinction of the two cells; so that the fruit, which forms a rather large elliptical purple berry, is only 1 or at most 2-seeded.

The Clove-tree, as we have before observed, is a native of the Molucca Islands; and a short time before the Portuguese took possession of Amboyna, the Cerammers of Camballo secretly carried some seeds in hollow bamboos from Machian, and thus propagated this valuable tree all over Amboyna, Ceram, and the neighbouring islands; and in the space of from fifty to sixty years, the whole of Hoewamoehil was covered with them. This was made known to the Dutch when they first went to Cambello; and some of the first-planted trees were shown to them behind the hill *Massili;* the memory of it is likewise preserved in the traditionary songs of the Amboynese. The brave and enterprising inhabitants of Cambello were rewarded for their candour, by the destruction of all their clove-trees; whereby they were deprived of the fruits of their industrious exertions. The implacable enmity which they in consequence entertained for the Dutch, and their repeated attacks upon the forts, established by the latter, have been stigmatized by Dutch writers as a base and wicked spirit of disobedience; so that Valentyn says, "It would have been better, if, instead of extirpating their trees alone, we had, at the same time, exterminated this revengeful and sanguinary nation."

The Clove is now cultivated wherever human industry has carried it to a suitable soil and climate; and numerous other countries besides Amboyna possesses this precious vegetable. The French introduced it into the Islands of Mauritius and Bourbon, in 1769; and it has succeeded so well, that in 1802, when M. Bory de St. Vincent was in the Mauritius, he visited the first tree that had been planted by M. Poivre; saw it loaded with cloves; and ascertained that it had, in some years, produced the extraordinary

quantity of 125 lbs. of this spice: whereas, the average produce in Amboyna is 2 or 2½ lbs. per annum. It requires five thousand cloves to weigh a pound; consequently, there were 625,000 flowers upon this single tree, independently of others which were left for seed; "a fact," says M. St. Vincent, "which would appear incredible, were we not to mention, that this beautiful tree is at least forty feet high, throwing out innumerable branches, some of which, falling down on all sides, form a pyramid of verdure."

The Rev. Lansdowne Guilding, who wrote an account of the Botanic Garden in the Island of St. Vincent, says, "that the tree is covered with its lovely blossoms, the greater part of which prove abortive, and falling to the ground, are collected and dried for sale. The berries which remain on the tree, gradually enlarge their calyx and develop the seed, and are gathered under the trees about July, having turned to a blackish purple, and lost all their value as a spice. The seeds require to be set out immediately and planted near the surface, as they vegetate rapidly. The young plants are tender, and should be placed, if possible, where it is intended they should remain.

The clove of merchandise is the unexpanded flower; the corolla forming a ball or sphere on the top, between the teeth of the calyx; and thus, with the narrow base or germen tapering downwards, having the appearance of a *nail;* hence Sir James Smith informs us, the Dutch call it *Naghel;* the Spaniards *Clavo;* the Italians *Chiodo;* and the French *Clou,* from which the English *Clove* is evidently derived.

Cloves are gathered by the hand, or beaten with reeds, so as to fall upon cloths placed under the tree; and dried by fire, or what is better, in the sun. The fully-formed berries are preserved in sugar, and eaten after dinner to promote digestion.

Qualities.—The bark, fruit, roots and leaves of the clove spice-tree are all more or less aromatic. The cloves of commerce have a strong aromatic odour, and a warm pungent taste. Infused in water, they give out to it more of their smell than to spirit, but not so much of their flavour. Alcohol takes up all the virtue of cloves. By distillation with water, they yield a fragrant essential oil, which is not very pungent; but which is said to be generally rendered acrid, by a portion of the resinous extract obtained by the action of alcohol on cloves being dissolved in it.

Cloves should be chosen large-sized, perfect in all parts, heavy, of a fine fragrant smell, and hot aromatic taste, so as almost to inflame the throat; the colour should be dark-brown, almost approaching to black, and when handled should leave an oily moisture on the fingers. When *fresh gathered,* cloves will yield, on simple pressure, a fragrant, thick, reddish oil. Sometimes they have a considerable portion of their essential oil drawn from them, and are then mixed with those that retain it. By this mixture the purchaser may be deceived; but on examination, those cloves which have lost their virtue, always continue weaker than the rest, and of a paler colour; and whenever they look shrivelled, having lost the knob at the top, are all light or broken, with but little smell or taste, they should be rejected. As cloves readily absorb moisture, it is not uncommon, when a quantity ts ordered, to keep them near a vessel of water, by which means a considerable addition to their weight is made. The ton is 12 cwt. for freight.

When new, *oil of cloves* is of a pale reddish brown colour, (which becomes darker by age,) extremely hot and fiery, and sinks in water. The kind generally exported from India, contains nearly half its weight of an insipid expressed oil, which is discovered by dropping a little into alcohol; when, on shaking it, the genuine oil mixes with the spirit, and the adulteration separates. It is sometimes adulterated with a cheaper essential oil: to discover this, dip a rag into it, and hold it before the fire; the flavour of the genuine oil will fly off, leaving that of the added behind.

Medical Properties and Uses.—Cloves are generally conceded to be the most stimulating of aromatics, and are chiefly employed to impart a pleasant favour, or to correct the irritative properties of drastic medicines. The essential oil is sometimes added to extracts for the same purposes, and is a popular remedy for tooth-ache. The infusion of cloves is a warm and grateful stomachic, and is advantageously employed to releive the sense of coldness in the stomach, which attends some forms of dyspepsia, especially when arising from the abuse of ardent spirits, or chronic gout. The Dutch join it with cinchona and supertartrate of potass, in obstinate agues. Twenty cloves are added in powder to half an ounce of each of the other ingredients, and half a drachm is given every third or fourth hour. In dyspepsia, and as a vehicle for other medicines, ʒij of cloves are infused in half a pint of boiling water, and administered in the dose of an ounce and a half, or two ounces. The essential oil is made into an agreeable draught by diffusing it in water, with mucilage; and an aromatic syrup is sometimes made from the clove, and coloured with cochineal. Cloves are used in their native climate, and in almost every part of the civilised world, as an article of luxury, communicating a pleasant favour to preserved fruit, sauces, ragouts, and liqueurs. They are likewise employed by the perfumer.

Dose.—In substance, from gr. v. to gr. x.

Off. Prep.—Infusum Caryophyllorum, L.D.

Coffea Arabica?

COFFEA ARABICA.—THE ARABIAN COFFEE TREE.

CLASS V. PENTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, STELLATÆ.——THE MADDER TRIBE.

a Berries. *b* The Seed within the berry.

THE Arabic name of the plant is Qahoueh, and of this word, the Persian Cahwa, the Turkish Cahvey, the French Café, and our Coffee are evidently corruptions. The coffee-plant is an evergreen shrub, rising from fifteen to twenty feet in height. The trunk is erect, seldom exceeding two or three inches in diameter, and covered with a brownish bark. The leaves are opposite, ovate-lanceolate, pointed, entire, wavy, smooth, shining; bright green on the upper surface, paler beneath, and placed on short petioles. At each knot of the branches are two awl-shaped, opposite, interfoliaceous stipules. The flowers are white, sweet-scented, sessile, disposed in clusters of four or five together, in the axillæ of the leaves, and soon falling off. The calyx is superior, very small, 5-toothed. The carolla is monopetalous, funnel-shaped, and divided into five lanceolate, spreading segments. The filaments are five, inserted into the tube of the corolla, and supporting yellow, linear anthers. The germen is ovate, inferior, bearing a simple style the length of the corolla, and two awl-shaped, reflexed stigmas. The berry is globular, about the size of a cherry, umbilicated at the summit, two-celled, and contains a somewhat gelatinous pulp. The seeds are hemispherical, convex on one side, flat and furrowed longitudinally on the other, of a pale glaucous colour, and involved in a thin, elastic pellucid aril. *(Med. Bot.)*

Few vegetable substances have been more generally esteemed for their medicinal and dietetic properties than the berries of the coffee-tree. The plant is fully described by Ellis and several other writers, and Gærtner has given an elaborate description of the fruit. The coffee-tree is generally regarded as a native of Arabia, but Bruce says, it derives its name from Caffee, a province of Narea, in Africa, where it grows spontaneously in great abundance. The plant does not appear to have been known to the Greeks or Romans, nor are there any facts on which we can rely respecting its origin in the East. It has been well ascertained, however, that the berries were imported into every part of Europe, and used as a favourite beverage, long before it was known of what plant they were the product. Prosper Alpinus had seen the coffee-tree, without fructification, in some gardens in Egypt; but the first intelligible botanical account was published by Anth. de Jussieu, in the Memoirs of the Academy of Sciences in Paris, in 1713. We are informed by Boerhaave, in his "Index to the Leyden Garden," that it was first introduced into Europe by Nicholas Wisten, a burgomaster of Amsterdam, and chairman of the Dutch East India Company, who gave directions to the governor of Batavia, to procure seeds from Mocha in Arabia Felix. These being sown in the island of Java, several plants were procured, and one was transmitted by Wisten, about the year 1690, to the botanic garden at Amsterdam. From the progeny of this plant, not only the principal botanic gardens in Europe, but also the West India islands, were supplied with this valuable tree. Soon after its introduction into Holland, it was cultivated by Bishop Compton, at Fulham.

The coffee-tree is frequently cultivated in our gardens as an ornamental evergreen, and will both flower and ripen its fruit. It is propagated by the berries, which must be sown soon after they are gathered, or they will not vegetate. Being an intro-tropical plant, it must be kept in the stove, and should be allowed a free circulation of air, to prevent the attacks of insects.

In Arabia, the fruit is dried in the sun upon mats, and the outer coat is separated by means of a large stone cylinder. It is again placed in the sun, winnowed, and packed up in bales. In the West India islands, as soon as the fruit is of a deep red colour, it is reckoned to be ready for being gathered. A large linen bag, kept open by means of a hoop round its mouth, is suspended to the neck by the negroes, who pull the berries with their hands, and, after filling the bag, empty it into a large basket. A single negro can easily collect three bushels in a day. As the berries do not ripen together, they are collected at three different gatherings. One thousand pounds of good coffee are produced from one hundred bushels of *cherries* just from the tree. The coffee-berries may now be dried in two different ways. The first method is to place

them in the sun, in layers of four inches thick on inclined planes. In a few days, the pulp is discharged by fermentation, and in about three weeks the coffee is completely dry. The skin of the berries, already broken, is removed by mills, or in wooden mortars. The second method, is to separate the grain from the pulp at once, by means of a mill, and the grains are then left to soak in water for twenty-four hours. They are afterwards dried, and then stript of the pellicle, or parchment, as it is called, by means of appropriate mills. The grains of coffee are afterwards winnowed, and mingled with the grindings and dust of the parchment, in which state they are put into bags for sale.

It appears by Le Grand's "Vie privée des François" that the celebrated Thevenot, in 1658, gave coffee after dinner; but it was considered as the whim of a traveller; neither the thing itself nor its appearance was inviting, and it was probably attributed by the gay to the humour of a vain philosophical traveller. But ten years afterwards a Turkish ambassador at Paris made the beverage highly fashionable. The elegance of the equipage recommended it to the eye, and charmed the women; the brilliant porcelain cups in which it was poured; the napkins fringed with gold, and the Turkish slaves on their knees presenting it to the ladies, seated on the ground on cushions, turned the heads of the Parisian dames. This elegant introduction made the exotic beverage a subject of conversation, and in 1672, an Armenian at Paris, at the fair time, opened a Coffee-house. But the custom still prevailed to sell beer and wine, and to smoke and mix with indifferent company in their first imperfect coffee-houses. A Florentine, one Procope, celebrated in his day as the arbiter of taste in this department, instructed by the error of the Armenian, invented a superior establishment, and introduced ices;[a] he embellished his apartment, and those who had avoided the offensive coffee-houses, repaired to Procope's where literary men, artists, and wits resorted, to inhale the fresh and fragrant steam. It was at the coffee-house of Du Laurent, that Saurien, La Motte, Danchet, Boinden, Rousseau, &c. met, but the mild streams of the aromatic berry, could not mollify the acerbity of so many rivals, and the witty malignity of Rosseau gave birth to those famous couplets on all the coffee-drinkers, which occasioned his misfortune and his banishment.

Among a number of poetical satires against the use of coffee, I find a curious exhibition, according to the exaggerated notions of that day, in "a cup of coffee, or coffee in its colours," 1663. The writer, like others of his contemporaries, wonders at the odd taste which could make coffee a substitute for canary.

"For men and christians to turn Turks and think
To excuse the crime, because 'tis in their drink!
Pure English apes! ye may, for aught I know,
Would it but mode—learn to eat spiders too.[b]
Should any of your grandsire's ghosts appear
In your wax-candle circles, and but hear
The name of coffee, so much called upon,
Then see it drank like scalding Phlegethon;
Would they not startle, think ye all agreed
'Twas conjuration both in word and deed;
Or Catiline's conspirators, as they stood
Sealing their oaths in draughts of blackest blood,
The merriest ghost of all your sires would say,
Your wine's much worse since his last yesterday.
He'd wonder how the club had given a hop
O'er Tavern bars into a Farrier's shop,
Where he'd suppose, both by the smoke and stench,
Each man a horse, and each horse at his drench.
Sure you're no poets, nor their friends, for now
Should Johnson's trennous spirit or the rare
Beaumont and Fletcher's in your mind appear,
They would not find the air perfum'd with one
Castilian drop, nor dew of Helicon;
When they but men would speak as the Gods do,
They drank pure nectar as the Gods drink too,
Sublimed with rich canary!—say shall then,
These less than Coffee's self, these coffee men;
These sons of nothing, that can hardly make
Their broth, for laughing how the jest does take;
Yet grin, and give ye for the vine's pure blood
A loathsome portion, not yet understood,
Syrup of soot or essence of old shoes,
Dasht with diurnals and the books of news."

Amidst these contests of popular prejudices, between the lovers of forsaken canary, and the terrors of our females at the barrenness of an Arabian desert, which lasted for twenty years, at length the custom was universally established; nor was there wanting some reflecting minds desirous of introducing the use of this liquid among the labouring classes of society, to wean them from strong liquors. Howel, in noticing that curious philosophical traveller, Sir Henry Blount's "Organon Salutis," 1659, observed, that his "coffa drink hath caused a great sobriety among all nations; formerly apprentices, clerks, &c., used to take their morning draughts in ale, beer, or wine, which often made them unfit for business. Now they play the good fellows in this wakeful and civil drink. The worthy gentleman, Sir James Muddiford, who introduced the practice hereof in London, deserves much respect of the whole nation."

[a] A most exquisite ice is made at Paris, called *glace au café blanc*; it has the flavour of the coffee, without its brown hue; how this is managed, we know not, but Tortoni can tell.

[b] This witty poet was not without a degree of prescience; the luxury of eating spiders has never indeed become "modish," but Mons. Lalande, the French astronomer, and one or two humble imitators of the modern philosopher, have shewn this triumph over vulgar prejudices, and were epicures of this stamp.

On the introduction of coffee into Constantinople, much prejudice existed against its use. It was proscribed as an intoxicating beverage, and the shops were ordered to be shut by the Mufti, who complained that the Mahommedans forsook the mosques, and crowded the coffee-houses. Its use was also forbidden by the Syrian government. But, notwithstanding the most severe prohibitions, it has become, in Turkey, almost a necessary of life; indeed, so essential was it one time considered, that the refusal of a husband to supply his wife with a reasonable quantity of coffee was enumerated and admitted amongst the legal causes of divorce.

Such is the history of the first use of coffee and its houses at Paris. We had the use, however, before even the time of Thevenot; for an English Turkey merchant brought a Greek servant in 1652, who knowing how to roast and make it, opened a house to sell it publicly. I have also discovered his hand bill, in which he sets forth, "The vertue of the coffee-drink, first publiquely made and sold in England, by Pasqua Rosee, in St. Michael's Alley, Cornhill, at the sign of his own head."

For about twenty years after the introduction of coffee in this kingdom, we find a continued series of invectives against its adoption, both for medicinal and domestic purposes. The use of coffee, indeed, seems to have excited more notice, and to have had a greater influence on the manners of the people, than that of tea. It seems at first to have been more universally used, and is still on the continent; and its use is connected with a resort for the idle and the curious; the history of coffee-houses, ere the invention of clubs, was that of the manners, the morals, and the politics of a people. Even in its native country, the government discovered that extraordinary fact, and the use of the Arabian berry was more than once forbidden where it grows: for Ellis, in his "History of Coffee," 1774, refers to the Arabian MS. in the King of France's library, which shews that coffee-houses in Asia were sometimes suppressed. The same thing happened on its introduction into England. (*Leigh Hunt's London Journal, from D' Israeli.*)

The appearance of a coffee plantation during the season of flowering, which does not last longer than a day or two, is very interesting. In one night the blossoms expand so profusely as to appear like trees in England, when a snow-storm has come at the close of the Autumn, and loaded them while full of foliage.

The seeds are known to be ripe by the dark red colour of the berries, and if not then gathered, they will drop from the trees. "When the Arabian cultivator," says Mr Edwards, "sees that his coffee is ripe, he spreads large cloths under his trees, which he shakes from time to time, to make the ripe cherries fall. He never pulls one grain of coffee with the hand, whatever appearance it may have of maturity, He considers none as ripe, but such as fall on lightly shaking the tree. The berries are afterwards spread upon mats, and exposed to the sun's rays until perfectly dry, when the husk is broken with large heavy rollers made either of stone or of wood. The coffee thus freed from its husk, is again dried thoroughly in the sun, that it may not be liable to heat when packed for transportation.

La Roque says, that in Arabia Felix the coffee-tree is raised from seed, which they sow in nurseries, and plant them out as they have occasion. They choose for their plantations a moist shady situation, on a small eminence, or at the foot of the mountains, and take great care to conduct from the mountains little rills of water, in small gutters or channels, to the roots of the tree, for it is absolutely necessary they should be constantly watered, in order to produce and ripen the fruit. For that purpose, when they remove or transplant the tree, they make a trench of three feet wide, and five feet, which they line or cover with stones, that the water may more readily sink deep into the earth, with which the trench is filled, in order to preserve the moisture from evaporating. When they observe that there is a good deal of fruit upon the tree, and that it is nearly ripe, they turn off the water from the roots, to lesson that succulency in the fruit, which too much moisture would occasion. In places much exposed to the south, they plant their coffee-trees in regular lines, sheltered by a kind of poplar tree, which extends its branches on every side to a great distance, and affords a very thick shade. Without much precaution they suppose the excessive heat of the sun, would parch and dry the blossoms so, that they would not be succeeded by any fruit. (*Ellis's History of Coffee.*)

The most remarkable property of coffee, however, is its power of relieving drowsiness, and of retarding the access of sleep for 6 or 8 hours. Hence its introduction after dinner to remove the torpor that follows repletion. Hence also its more common use as a morning than evening beverage, and the impropriety of taking it late at night, or soon before going to bed, at least if sleep be desired. These properties, which are by some persons regarded as infelicitous, prove its chief recommendations to others, especially to literary

men who frequently take it to excess, in order to prolong their studies unconquered by sleep, the mind seeming to be enlivened by its use, and the body invigorated and calmed. It appears likewise to induce far less depression and nervous irrability than are known sometimes to follow too free indulgence in the use of tea. The Turks and other Asiatic nations, to whom indolence is enjoyment, moderate the effect of coffee by mixing opium in it. (*Burnett's Outlines.*)

Brute animals appear likewise to be subject to its influence, for it his been affirmed that the goats, which in Arabia browse on the leaves and eat the fruit of the coffee, are remarkable for their liveliness and gamboling. Coffee is a more fit drink for persons of a lymphatic and sluggish temperament than for those of a lively sanguineous habit, more wholesome, according to the French writers, for the old than for the young, and more required by men than women.

Qualities and Chemical Properties.—When the berries of coffee are roasted, a portion is converted into tannin by the action of the heat, and an agreeable aromatic substance is developed, the nature of which has not been ascertained. The same principle is also developed by roasting barley, beans, and many other vegetables, which, on that account, are occasionally employed as substitutes for coffee, and suit some stomachs better. The infusion of unroasted coffee in boiling water, is of a yellowish green colour; but the decoction, by continuing the boiling, becomes brown. It becomes turbid on cooling. The alkalies render it more brown. It strikes a black with sulphate of iron, but does not precipitate with gelatin. Chlorine nearly destroys the colour; but if an alkali be added, the liquid becomes red. When water was distilled from coffee, what came over had an aromatic odour, and a few drops of a substance, similar to myrtle wash, swam on the surface of it; the residual liquid became milky when mixed with alcohol, and let fall a substance possessing the properties of gum. From experiments made, chiefly by Cadet,[a] it appears that coffee contains an aromatic principle, a little oil, gallic acid, mucilage, extractive and bitter principle,—The result of Cadet's experiments on sixty-four parts of coffee, was as follows: —

Gum	8·0
Resin	1·0
Extract and bitter principle	1·0
Gallic Acid	3·05
Albumen	0·14
Fibrous and insoluble matter	45·05
Loss	6·86

From 1920 parts of Levant and Martinique coffee, Hermann obtained the following proportions respectively:—

	Levant	Martinique
Gum	130	144
Resin	74	68
Extractive	320	310
Fibrous matter	1335	1386
Loss	61	12[b]

Other analyses have been made by chemists. M. Grindel[c] found it contain kinic acid; and M. Payssé has discovered what he has endeavoured to show as a peculiar acid, to which he has given the name of coffee-acid.

As a general palliative, strong coffee is often serviceable in various kinds of head-ache, and where its own sedative power is unavailing, it forms one of the best vehicles for the administration of laudanum. It diminishes in some degree the narcotic power of the latter, but counteracts its distressing secondary effects. When laudanum is intermixed with strong coffee for the cure of many modifications of head-ache, tranquillity and ease are produced, though there may be no sleep: when laudanum, on the contrary, is taken alone, sleep will, perhaps, follow, but is mostly succeeded by nausea, and a return of pain. Hence, the Turks and Arabians make strong coffee their common vehicle for Opium, from its tendency to counteract the narcotic principle of the latter; and on the same account, it is plentifully administered after the stomach has deen evacuated of its contents, in cases of poisoning by opium.

For common purposes, infusion of coffee is the most agreeable method of preparing it, as the aromatic and volatile principles are dissipated by boiling.

In Arabia and other parts of the East, that called Mocha is considered the best.

[a] *Ann. de Chim.* lviii. 226. [b] Crell's *Ann.* 1800, ii. 108. [c] Hist. Paris, iv. 545.

Gossypium herbaceum.

a

GOSSYPIUM HERBACEUM.—THE COMMON COTTON TREE.

CLASS XVI. MONADELPHIA.——ORDER VIII. POLYANDRIA.

NATURAL ORDER. BOMBACEÆ.—THE COTTON TREE TRIBE.

a Seed.

CALYX cup-shaped, obtusely five-toothed, surrounded by a three-leaved involucel, with the leaves united and cordate at the base and deeply cut or toothed irregularly. Style simple, marked with three or five furrows towards the apex. Stigmas usually three, sometimes five. Capsules three-five-celled, three-five valved at the apex, loculicidal. Seeds numerous, imbedded in cotton. Young branches and leaves more or less conspicuously covered with little black dots; nerves below, usually with one or more glands.

*M. Rohr has long ago pointed out from many years experience in the West Indies, that constant characters could not be obtained from the shape of the leaves, their glands, or the involucel, but must be looked for in the seed. Dr. F. Buchanan Hamilton (Linn. Trans. v. xiii. page 492,) makes the same remark, and adds, that "the plant being annual, or growing to a small tree with a woody stem lasting for years, is a mere accidental circumstance, owing to the manner of treatment. In dividing the genus into species, we therefore follow this last writer, who mentions that the pubescence is a better criterion than either the number and form of the lobes of the leaf, or the number of the glands, for distinguishing the varieties." M. Rohr divides the cotton plants with which he was acquainted into, 1 those with seeds black and rough, 2 with seeds brownish black and veined, 3 seeds sprinkled with short hairs; 4 seeds completely covered with a close down, which characters, combined with the colour of the cotton and its mode of attachment to the seed, and the shape of the seed, we recommend to the attention of those who have the means of studying them in the living state; as it is almost necessary that dried specimens in leaf, flower, and ripe fruit, be accompanied by remarks, before botanists can clear up this genus with any kind of satisfaction.—*Prodromus Floræ Peninsulæ Indiæ Orientalis.*

There are several species of the cotton tree. The common Levant cotton, which is cultivated in several islands of the Archipelago, becomes, in six months, as large as a European quince. It bears rich sulphur-coloured flowers, which are very large and beautiful. After they fall, a head of seed appears, which, when it comes to maturity, bursts open, scatters its contents, and discovers the white cotton. In China the variety is particularly cultivated that produces the cloth called Nankeen. The down covering the seed is called cotton wool, which is white in the common plant, but in this it has the tinge it preserves when spun and woven into cloth. In India the bees find singular habitations. On one cotton tree, say some recent travellers, a gentleman counted a hundred and eighty distinct hives, belonging to as many swarms. It might indeed be called "a realm of bees," comprehending so many towered cities, "filled with the busy hum" of their industrious population. The natives take these nests in the night time, by making a fire under the tree; they ascend the stem, wrapped in a thick woollen cloth, and when they have reached the boughs, they cut off the combs, leaving them to fall upon the ground. The Barbadoes cotton tree has a stem from six to fifteen feet high, is propagated by seed, set in rows, about five feet asunder, and produces two crops annually. Each plant is reckoned to yield about a pound weight. When the pods are nearly expanded, the wool is picked and laid in small quantities on a machine made with two rollers; whence it falls into a sack placed underneath, and leaves the seed behind. The cotton is then carefully picked, cleaned, and stowed in bags, where it is well trodden down, that it may be close and compact; the marketable weight of each being three hundred pounds. An acre produces, on an average, nearly that quantity. As cotton is easily grown and collected, the patient industry and simple habits of the people by whom it was cultivated enabled them to send to Europe their manufactured stuffs, of a fine and durable quality, even from the time of the ancient Greeks. Before the discovery of the passage to India by the Cape of Good Hope, cotton goods were very costly in Europe. M. Saywell observes, that though cotton stuffs were cheaper than silk, which was formerly sold for its weight in gold, they still could only be purchased by the most wealthy, and

* For the chief part of the following account we are indebted to Dr. Royle's splendid work "Illustrations of the Botany, &c., of the Himalayan mountains.

that, could a Grecian lady awake from her sleep of two thousand years, her astonishment would be unbounded to see a simple country girl clothed with a gown of printed cotton, a muslin kerchief, and a coloured shawl. In the seventeenth century, France began to manufacture into stuffs the raw cotton imported from India, as Italy had done a hundred years before. A cruel act of tyranny drove the best French workmen, who were Protestants, into England, and we thus learned the manufacture. The same act of despotism caused the settlement of silk manufacturers in Spitalfields. We did not make any considerable progress in the art, nor did we use cotton exclusively in making up the goods. The warp or longitudinal threads of the cloth were of flax, the weft only was of cotton, for we could not twist it hard enough, by hand, to serve both purposes. This weft was spun entirely by hand, with a distaff and spindle—as it is still done by the natives of India. Notwithstanding these disadvantages, our manufacture continued to increase; so that, about 1760, though there were fifty thousand spindles at work in Lancashire alone, the weavers found the greatest difficulty in procuring a sufficient supply of thread. Neither weaving nor spinning were then carried on in large factories. They were domestic occupations: the women of a family worked at the distaff or hand wheel: and there were two operations necessary in this department. Roving, or coarse spinning, reduced the carded cotton to the thickness of a quill, and the spinner afterwards drew out and twisted the roving into weft fine enough for the weaver: English cotton goods were therefore very dear, and had but little variety. The cloth made of flax and cotton was called fustian; and we still receive the calicos and printed cottons from India. But an amazing change was about to take place. Richard Arkwright, of Preston, invented in 1769, the principal part of the machinery for spinning cotton, and thus gave bread to about two millions of people instead of fifty thousand; and, assisted by subsequent inventions, raised the importation of cotton wool from India from less than two millions of pounds per annum, to two hundred millions; set in motion six millions of spindles, instead of fifty thousand, and increased the annual produce of the manufacture from two hundred thousand to thirty six millions pounds sterling.

The consumption of cotton has increased in proportion to the progress of the arts and civilization. It appears to have been originally known only as a produce of India, the country which at the present day is supposed by many incapable of producing any but the inferior kinds. As this is an opinion which appears to me to have been hastily formed from the results of experiments in a few situations, instead of after an investigation into the nature and variety of the soils and climates of the different provinces of this extensive country, it will not be, perhaps, irrelevant to enter into a few details on the subject. That cotton was originally introduced from India into Egypt, seems probable from Herodotus not mentioning it among the products of the latter country, which he would hardly have failed doing had it been common or cultivated, as its novel and singular appearance must have struck a traveller from Europe, particularly as in his account of the Indians, he mentions that they possess a kind of plant, which, instead of fruit, produces wool of a finer and better quality than that of sheep: of this the natives make their clothes. In another place, he mentions that the Egyptians, as well as the priesthood, are so regardful of neatness, that they wear only linen clothing, and that always newly washed. And again, "their habit is made of linen; over this they throw a kind of shawl made of white wool, but in these vests of wool they are forbidden by their religion to be buried, or to enter any sacred edifice." By some authors, it has been suggested that we ought in some places to read *cotton* instead of *linen;* but this seems to be taking for granted, that the former was as common in Egypt in ancient times as it is at present; and it appears to me, that in other places we ought to read *linen* instead of *cotton,* as in the account of the Egyptian mode of embalming the body is said to be wrapped up in bandages of cotton. That this was not the case is proved by all the mummies which have been opened and the cloth carefully examined under the microscope, having been found to be swathed only in linen cloth; which it is not likely would have been the case, if cotton had been as common an article of clothing in those, as it is in the present day, particularly as some used for this purpose appears to have been previously worn, as it is required in some places. It is not improbable, however, that cotton fabrics were imported into Egypt from India even at the earliest historical periods, with cinnamon, cassia, frankincense. Pliny, writing about 500 years subsequent to the time of Herodotus, mentions, that the upper part of Egypt verging towards Arabia, produces a small shrub, which some call *gossypion,* others xylon, and from the latter the cloth made from it, *xylina,* bearing a fruit like a nut, from the interior of which a kind of wool is produced, from which cloths are manufactured inferior to none for whiteness and softness, and therefore much prized by the Egyptian priesthood. Dr. Harris, in his natural history of the Bible, quotes several authors to show that cotton was known to the Hebrews, adding that the name *buty,* by which it is distinguished, is not found among the Jews till the time of their royalty, when by commerce they obtained articles of dress from other nations. The author of the *Ruins of Palmyra* has shown that the East Indian trade by that city into Syria was as ancient as the days of Solomon; and Heeren concludes, that cotton fabrics formed an article of the ancient commerce with India, as Clesias mentions that the Indians possess an insect, which affords a red colour more brilliant than cinnabar, which they employ in dying their stuffs.

It has sometimes been considered a subject of doubt, whether the cotton was indigenous to America, as well as to Asia; but without sufficient reason, as it is mentioned by very early voyagers, formed the only clothing of the natives of Mexico; and as stated by Humboldt, is one of the plants of which the cultivation among the Aztee tribes was as ancient as that of the *pili* (Agave), the maize, and the *quinoa* (Chenopodium.) If more evidence be required it may be mentioned, that Mr. Brown has in his possession cotton not separated from the seeds, as well as cloth manufactured from it, brought by Mr. Cumming from the Peruvian tombs; and it may be added, that the species now recognized as American, differ in character from all the known Indian species.

In a cultivated state, cotton is now distributed over a very wide expanse of the globe on both sides of the equator: on the north extending as far as the southern shores of Europe, and on the south to the Cape of Good Hope. In the islands of the Pacific Ocean, it is found both in the Friendly and the Society Islands. Nearly under the line it is cultivated in the islands of Celebes, Java, Timor and the Seychelles, as well as in Kutung, where the best is said to be grown, extending northwards up the Malayan Peninsula, along the coast of Tenasserim into the Bushmere territory, and from this westward into Siam and China, whence there is a peculiar species. Cotton is common in every part of India; a wild species was found in Ceylon, and another in Silhet by Dr. Roxburgh. From India the cotton seems to have travelled by the way of the Persian Gulf into Arabia as well as into Persia, and from thence to Syria and Asia Minor. From Arabia and from the ancient commerce by the Red Sea with India it was probably introduced into Egypt, whence it seems to have spread into the interior of Africa and to both its western and northern coasts. The island and shores of the Mediterranean long supplied Europe with all the cotton it required; during the reign of Napoleon, he caused it to be introduced into Corsica, Italy, and the southern parts of France; and Mr. Kirkpatrick cultivated it in Spain, near Malaga. In America, cotton is extensively cultivated in the Spanish, Portuguese, Dutch, and English settlements; one species is peculiar to Peru; others are cultivated in the West India islands; also in Mexico, and in the southern states, as Georgia and Carolina of the United States of North America.

The sowing takes place in Georgia from November to April in lines or furrows: the latter may be five feet apart. In America and the West Indies, where the land has not been previously cleared, the practice is to fell and set fire to the timber, and dig holes for sowing the seed. These may vary in distance, but are often eighteen inches apart, and about as deep. From twelve to twenty or thirty seeds are sown in each hole, as soon as possible after ploughing, digging, or hoeing, and are covered with one or one and a half inch of soil. The most important operation is weeding; this is repeated every eight or ten days in China, until the bushes put forth blossom, and every month in Guiana; it ought to be carefully performed so as not to injure fibrils; it is useful not only in removing weeds, but also in turning up the soil. When plants are three or four inches high, all, except three or four in each hole, are pulled up: at the end of the third month, all the plants but one are withdrawn; in Georgia, after a month, six or seven are left in each hole, at next hoeing, only one or two which are most apart. When the remaining plant is eighteen or twenty four inches high, only twelve inches in China, the top is pinched off, that the lateral branches may shoot out, which, after a time, are treated in the same manner to favour the formation of flower and fruit. This process is objected to by Von Rohr. The blossom generally appears about the end of July, or beginning of August; pods open about six weeks after the blossoms, and the crops begin in September, both in Georgia and Guiana; but most of the cotton is ready about the middle of October, and the whole of the first crop is not got in before the end of December in Guiana, when, as in India, Christmas rains occur; the plants afterwards sprout out new shoots and blossoms, and about the end of February the picking may be resumed and continued to the middle of April. The ground is carefully weeded between the crops; women and children are employed in picking the cotton out of the pods, and as moisture is injurious, the gathering is not commenced until the dew is dissipated; and as the pods ripen in succession, it is repeated at short intervals; the cotton is then sorted; that which had fallen on the ground is kept separated, the whole cleaned, and then dried in the sun. This hardens the seeds, and enables them to separate more easily from the cotton, and is moreover useful in preventing the latter spoiling from heating. If left too long on the plant, the withered leaves and calyx become mixed with the cotton, as is so frequently the case in India. In Guiana the perennial cotton produces a full crop the second year, and remains productive for four or six years. In China it is kept only three years; young plants are put in wherever deficiencies occur. In Guiana the pruning of the perennial cotton plant takes place in the second year of its growth, after the whole of the produce is gathered in. May is considered the most favourable month, when the trees are cut to about four feet high, premising with a good weeding of the ground. Dry weather and the early part of the day are recommended, that the sun may dry up the wounds.

In addition to the cultivation, it will be interesting to be able to compare the expenses in different countries. In the West Indies, Mr. Edwards states that each able bodied labourer can perform a task equal

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to the cultivation of five acres; and a plantation is considered capable of yielding 1,000 pounds of merchantable cotton for each able-bodied labourer employed. In Georgia it is calculated that the usual expenses on the cultivation of cotton are twopence halfpenny a pound on the produce, but in the West Indies, owing to a less productive species being employed, of which the produce is only one half the weight per acre, the expenses are said to be as high as seven pence a pound. In comparing the careful culture of America with that which is practised in India, we shall find it, as truly stated by Mr. Crawford, no where considered as a matter of primary importance, but made secondary to rice, wheat and grain generally; and, I may add, that I have never observed any care bestowed on the selection or exchange of seed, the preparation of the soil, or the growth of the plant, and, least of all, in the collection of the produce; being in its earlier periods grown with some other crop, and in the later overgrown with weeds, while the picking does not take place until the leaves are so brittle, that it is impossible to prevent them mixing with the cotton.

The commerce of Great Britain has of late years been peculiarly indebted to the cotton manufactory, which produces clothing for people of all ranks, from Russia to Guinea, and unites elegance with cheapness, in an unrivalled degree. Great quantities of the native fabrics of the East are also imported into Europe; some of these, by the advantage of an excellent material and incomparable manufacture, dexterity and patience in the workmen, though made with very simple machinery, surpass in fineness and beauty, any thing of European manufacture. The natives are said to perform their finest work in moist cool places, under ground, which makes the cotton hold together, so as to draw out to the thinnest threads; and the soft and delicate fingers of the Indian women give them the sense of feeling to a degree of nicety much beyond that of our common people. It is probable that cotton at present clothes more people in the world than any other substance; its peculiar advantages, besides cheapness, is the union of warmth with lightness, whence it is fitted for a great variety of climates; to the hot it is better adapted than linen, on account of its absorbing quality, which keeps the skin dry and comfortable. The woolliness of cotton gives a kind of nap to the clothes made of it, which renders them soft to the touch, but apt to attract dust; in the fine muslins this is burned off, by passing them between red-hot cylinders with such velocity as not to take fire; which, we may conceive, considering the combustibility of cotton, to be a very nice operation; a readiness to catch fire is indeed a dangerous quality of this material, and many fatal accidents have arisen from it, since the prevailing use of muslins in women's dress. Much mischief has also proceeded from colds taken in these delicate garments, which are by no means fitted to protect the wearers from the inclemencies of our variable climate.

The downy matter surrounding the seeds in some other plants, has been employed for the same purpose as cotton, and by proper preparation, has, in some instances, succeeded very well; but in most cases it is too brittle or of too short a staple to be used with advantage, in the form of thread; it has, however, afforded a useful material for stuffing beds and pillows, and for quilting; in this way the down of a plant growing copiously upon some of our bogs, called cotton grass, has been employed by the neighbouring poor.

Having thus given the natural history of the Cotton plant, and briefly described the changes it undergoes in its passage through the hands of the manufacturer, as well as the various uses to which his ingenuity and industry have enabled it to be applied; we shall now add the Travels of a Pound of Cotton, as the best means of showing the prodigious advantages of commerce and manufactures. If many of the improvements of modern life are so many ways of providing luxuries or even superfluities to the rich, we must always, at the same time, recollect, that the preparation of these articles gives employment and support to the industrious artizan, and furnishes him also with an abundance of additional enjoyments.

There was sent off for London lately, from Paisley, in Scotland, a small piece of muslin, about one pound weight, the history of which is as follows:—The cotton came from the East Indies to London; from London it went into Lancashire, where it was manufactured into yarn; from Manchester it was sent to Paisley, where it was woven: it was sent into Ayrshire next, where it was tamboured; afterwards it was conveyed to Dumbarton, where it was hand-sewed, and again returned to Paisley, whence it was sent to a distant part of the county of Renfrew to be bleached, and was returned to Paisley; it was then sent to Glasgow to be finished, and from Glasgow was sent by the coach to London. It is difficult to ascertain the time, precisely, which was necessary to bring this article to market; but it may be pretty near the truth to reckon it three years from the time it was packed in India, till it was fit for sale as cloth in the merchant's warehouse in London. It must have travelled 5000 miles by sea and 900 by land, and perhaps was afterwards shipped for some part of South America, which would add about 5000 miles more to these distances. It contributed to the support of at least 150 different people, whose services were employed in the carryings and manufacture of this small quantity of cotton, by which the value was increased 2000 times.

Primula veris.

PRIMULA VERIS.—COMMON COWSLIP.

CLASS V. PENTANDRIA.——ORDER I. MONOGYNIA.

NATURAL ORDER, PRIMULACEÆ.—THE PRIMROSE TRIBE.

CALYX inferior, monosepalous (of 1 sepal), tubular, upright, with 5 pointed teeth, and 5 angles, regular, permanent. Corolla monopetalous, salver-shaped, tube cylindrical, as long as the calyx; limb spreading in 5 rather deep inversely heart-shaped segments; mouth open. Filaments 5, in the throat of the corolla, very short, and opposite to the segments of the limb. Anthers upright, pointed, converging within the tube. *Germen* globular, *Style* thread-shaped, the length of the calyx. *Stigma* globular. *Capsule* cylindrical, of 1 cell, opening at the top with 10 upright parallel teeth. *Seeds* numerous, roundish, attached to an oblong, central *receptacle* or *placenta*. The 1-celled capsule, opening with 10 teeth; the salver-shaped *corolla* with a cylindrical tube, open in the throat; and the globular *stigma;* will distinguish this from other genera with a monopetalous, inferior corolla, and numerous covered seeds, in the same class and order.

Ben Jonson, with his usual tendency to overdo a matter of learning, calls cowslip, "lippes of cows." The name is derived, as some think, from their resemblance of scent to the breath of a cow; perhaps from growing much in pasture grounds, and often meeting the cow's lip. As beautiful objects of culture, they rank among the most esteemed for their beautifully bright colour, and we love them for being the heralds of spring. Gerard, in that curious old book of his, says, "They are commonly called *Primula Veris*, because they are the first among those plants that doe floure in the spring, or because they floure with the first. They are also named *Arthriticæ* and *Herbæ paralysis*, for they are thought to be good against the paines of the joints and sinews. They are called in Italian *Brache cuculi*, in English Petty Malleins, or Palsie-worts: of most, cowslips."

The blossoms are used for making wine. Farley says, "Take twelve pounds of sugar, the juice of six lemons, the whites of four eggs well beaten, and six gallons of water. Put all together in a kettle, and let it boil half an hour, taking care to skim it well. Take a peck of cowslips, and put them into a tub, with the thin peeling of six lemons. Then pour on the boiling liquor, and stir them about, and when it is almost cold, put in a thin toast, baked hard, and rubbed with yest. Let it stand two or three days to work. If you put in, before you tun it, six ounces of syrup of citron or lemon, with a quart of Rhenish wine, it will be a great addition. The third day strain it off, and squeeze the cowslips through a coarse cloth. Then strain it through a flannel bag, and tun it up. Leave the bung loose for two or three days till you be sure it has done working, and then bung it down tight, let it stand three months, and then bottle it.

It is accounted soporific, and thus recommended by Pope:

> ——"for want of rest,
> Lettuce and *Cowslip* wine: probatum est."

The flowers are, for the same purpose, sometimes mixed with tea, or infused alone. They have likewise been considered antispasmodic, whence probably the French designation, *Herbes de la Paralysie*. The leaves are sometimes eaten as a pot herb and in salads. The root has a fine scent, like aniseed. Silk worms are fond of the leaves and flowers, but the silk thus produced is not of the best quality. Milton elegantly defines the appropriate tints of these favourite congeners:

> "The flowery May, who from her green lap throws,
> The yellow *cowslip* and the pale primrose."

And Shakespeare depicts the saffron-coloured spots of the blossom as "Fairy favours," in his Midsummer Night's Dream:

> "Over park, over pale,
> Through flood, through fire,
> I do wander every where,
> Swifter than the moon's sphere;
> And I serve the fairy queen,
> To dew her orbs upon the green:
> The cowslip tall her pensioners be;
> In their gold coats spots you see;
> Those be rubies, fairy favours,
> In those freckles live their savours,
> I must go seek some dew drops here,
> And hang a pearl in every cowslip's ear.

The following is by Howitt, on finding an early cowslip:

> "It is the same! It is the very scent,
> That bland, yet luscious, meadow breathing sweet,
> Which I remember when my childish feet,
> With a new life's rejoicing spirit went,
> Thro' the deep grass with wild flowers richly bent
> That smil'd to high Heav'n from their verdant seat,
> But it brings not to thee such joy complete:
> Thou can'st not see, as I do, how we spent,
> In blessedness, in sunshine, and in flowers,
> The beautiful noon; and then, how seated round
> The odorous pile, upon the shady ground,
> A boyish group, we laughed away the hours,
> Plucking the yellow blooms for future wine,
> While o'er us play'd a mother's smile divine."

The leaves of the cowslip are recommended for feeding silk worms, before the leaves of the mulberry tree make their appearance. Cowslips are commonly supposed to possess somniferous quality. The process of making this wine is alluded to by Montgomery in the following lines:

"Where thick thy primrose blossoms play,
Lovely and innocent as they,
O'er coppice, lawns, and dells,
In hands the village children stray,
To pluck thy honied bells:

Whose simple sweets, with curious skill,
The frugal cottage dames distil,
Nor envy France the vine;
While many a festal cup they fill,
Of Britain's homely wine."

From Mr. Baxter's excellent work, British Flowering Plants.

The propertis of the primulàceæ, says Mr. Burnett, are insignificant, nature having thus as it were secured some of her prettiest flowers from rapine, and spared us kindly the pain of destroying those most delicate specimens of her handy works. Swine who never look up to the tree from whence falls their food, nor lick the hand that feeds them, are the only animals which claim any of the *Precie* for their especial sustenance. The cowslip is reputed to possess a mild narcotic power, and hence it is used to flavor and heighten the intoxicating effects of fermented liquors.

There are many brief incidents and apparently trivial events in our lives, that at the moment of occurrence are almost unnoticed; but which, from some association, make an impression on the memory at many periods of after-life, or may be remembered through existence with undiminished freshness; when others, of the most seeming interest at the time, fade from our recollections, or become abraded from the mind by a constant collision with the passing transactions of our days. It is in early life, chiefly, perhaps entirely, that deep and indelible sensations of regard and affection are made; and impressions in those days are often recorded upon an unsullied tablet, that admits in after hours of no erasement or superscription. How deep are our school-boy reminiscences! and the kindnesses received, and the friendships formed, at such periods, commonly constitute more enduring characters on our minds than all the after-occurrences, half-heartless transactions, perhaps, of later hours; when darker passions arise—ambition, avarice, self-interest, and cold reality, banish for ever the elysian ideas of youthful romance. There is a flower, the common *cowslip* of the fields, which by reason of associations, for thirty years of my life I never saw without emotion; and though I might sanctify this feeling, I confess my belief that it has not contributed to the general happiness of my life: from reverence at first, it gradually became a disease, induced a morbid indifference, and undermined and destroyed the healthful sources of enjoyment.

Towards the close of a most lovely spring day—and such a lovely one, to my fancy, has never beamed from the heavens since—I carelessly plucked a cowslip from a copse side, and gave it to *Constance*. 'Twas on that beautiful evening, as seated on a mossy bank, she dissected, with downcast eyes, every part of the flower; chives, pointal, petal, all were displayed; though I am sure she never even thought of the class. My destiny through life I considered as fixed from that hour. Shortly afterwards I was called, by the death of a relative, to a distant part of England; upon my return, *Constance* was no more. The army was not my original destination; but my mind began to be enfeebled by hourly musing upon one subject alone, without cessation or available termination; yet reason enough remained to convince me, that, without change and excitement, it would degenerate into fatuity.

The preparation and voyage to India, new companions, and ever-changing scenes, hushed my feelings, and produced a calm that might be called a state of blessedness—a condition in which the ignoble and inferior ingredients of our nature were subdued by the divinity of mind. Years rolled on in almost constant service; nor do I remember many of the events of that time, even with interest or regret. In one advance of the army to which I was attached, we had some skirmishings with the irregulars of our foe; the pursuit was rapid, and I fell behind my detachment, wounded and weary, in ascending a ghaut, resting in the jungle, with languid eyes fixed on the ground, without any particular feeling but that of fatigue, and the smarting of my shoulder. A *cowslip* caught my sight! my blood rushed to my heart—and, shuddering, I started on my feet, felt no fatigue, knew of no wound, and joined my party. I had not seen this flower for ten years! but it probably saved my life,—an European officer, wounded and alone, might have tempted the avarice of some of the numerous and savage followers of an Indian army. In the cooler and calmer hours of reflection since, I have often thought that this appearance was a mere phantom, an illusion—the offspring of weakness: I saw it but for a moment, and too imperfectly to be assured of reality; and whatever I believed at the time seems now to have been a painting on the mind rather than an object of vision; but how that image started up, I conjecture not—the effect was immediate and preservative. This flower was again seen in Spain: I had the command of an advance party, and in one of the recesses of the Pyrenees, of the romantic, beautiful Pyrenees, upon a secluded bank, surrounded by a shrubbery so lovely as to be noticed by many—was a *cowslip*. It was now nearly twenty years since I had seen it in Mysore: I did not start; but a cold and melancholy chill came over me; yet I might possibly have gazed long on this humble little flower, and recalled many dormant thoughts, had not a sense of duty (for we momentarily expected an attack) summoned my attentions to the realities of life, so, drawing the back of my hand across my eyes, I cheered my party with, 'Forward, lads,' and pursued my route, and saw it no more, until England and all her flowery meadows met my view: but many days and service had wasted life, and worn the fine edge of sensibility away;—they were now before me in endless profusion, almost unheeded, and without excitement: I viewed not the cowslip, when fifty, as I had done with the eyes of nineteen. *Time's Telescope.*

Tropaeolum Moritzianum.

TROPÆOLUM MORITZIANUM.—MORITZ'S INDIAN-CRESS.

Class VIII. OCTANDRIA.—Order I. MONOGYNIA.

Natural Order, TROPÆOLACEÆ.——THE NASTURTIUM TRIBE.

Character of the Genus Tropæolum. Calyx five-partite, the upper lobe spurred. Petals five, unequal, the three lower smaller or undeveloped. Stamens eight, entirely free. Carpella three, corky, kidney-shaped, indehiscent, or furrowed and rounded. Seeds large, exalbuminous, each completely filling the loculament in which it is placed. Embryo large, with two straight thick cotyledons, at first free, afterwards firmly agglutinated to each other, and to the testa, sub-distinct at the base, the radical lying between the processes of the cotyledons, bearing four tubercles, from which rootlets presently arise.

Description of the Species, Tropæolum Moritzianum. Plant every where glabrous. Root tuberous, Stem long, slender, much branched. Leaves (2-2½ inches across) petiolate, alternate, reniform-suborbiculate, bright green above, glaucous below, nerves radiated, reticulated, conspicuous, seven-nine lobed, truncated at the base, with shallow rounded sinuosities between the lobes; lobes rounded, emarginate, having in the centre a little yellow callous tooth at the extremity of the nerve; petioles (2-2½ inches long) acting as cirrhi to support the plant. Peduncles (three inches long) solitary, single-flowered, longer than the petioles. Flowers funnel-shaped. Calyx reddish on the outside, yellow and streaked with red within; segments ovate-lanceolate, callous at the apex, the upper the shortest and narrowest, the two lower the longest, the intermediate ones the broadest; spur straight, tapered, twice as long as the limb, more fleshy in the upper half than towards its apex, nectariferous. Corolla little longer than the calyx, red on the outside, orange-coloured within; petals unequal, the two upper subsessile, multifid at the apex, entire and wedge-shaped at the base, four-nerved, the three lower with long claws, subrotund, palmate, segments acuminate, the lowest the narrowest, and passing into long ciliæ upon the upper claws. Stamens rather distant, and nearly straight, rather shorter than the calyx; anthers round, dark, pollen green, granules small, spherical. Pistil nearly as long as the filaments; germen green, glabrous, three-lobed, the lobes keeled; style straight, stout; stigma of three acute segments, the upper being rather longer than the others.

Popular and Geographical Notice.—The right of the Tropæolaceæ to rank as a distinct order, has been doubted. It contains only three ascertained genera, and only an inconsiderable number of species, yet it does seem to me that we cannot unite these with any of the orders to which they have been thought to be most nearly related. The whole order belongs to Mexico, or South America, and the different species of the genus Tropæolum are scattered from the Northern limit of the order, as far to the Southward as Buenos Ayres. They are used as stimulating salads, and the tuberous roots of our species, when cooked, are used extensively as an article of food. As ornaments in the flower border they have long been deservedly favourites, and the present species will be considered by florists a very acceptable addition. If the tuber be protected in the winter, there seems little reason to doubt that it will, during summer, thrive well in the open air.

Introduction; Where grown; Culture. This species was introduced from Cumana, into the Botanic Garden, Glasgow, and the specimen here figured, received from that establishment, flowered in the stove of the Royal Botanic Garden, Edinburgh, in September and October, potted in ordinary garden mould.—Grah.

"June," according to Dr. Aikin, "is really, in this climate, what the poets represent May to be—the most lovely month of the year. Summer is commenced, and warm weather thoroughly established; yet the heats rarely arise to excess, or interrupt the enjoyment of those pleasures, which the scenes of nature now afford. The trees are in the fullest dress; and a profusion of the gayest flowers is everywhere scattered around, which put on all their beauty just before they are cut down by the scythe, or withered by the heat.

One of the earliest rural employments of this month, is the shearing of sheep; a business of much importance in various parts of the kingdom, where wool is one of the most valuable products. England has for many ages been famous for its breeds of sheep, which yield wool of various qualities, suited to different branches of the woollen manufactory. The downs of Dorsetshire, and other southern and western counties, feed sheep whose fine short fleeces are employed in making the best broad cloths. The coarser wool of

[a] For the foregoing description we are indebted to Mr. Maund's charming work "The Botanist," from which we have likewise copied the figure.

Yorkshire, and the northern counties, is used in the narrow cloths. The large Leicestershire and Lincolnshire sheep are clothed with long thick flakes, proper for the hosier's use; and every other kind is valuable for some particular purpose.

The season for sheep-shearing commences as soon as the warm weather is so far settled, that the sheep may, without danger, lay aside great part of their clothing. The following tokens are given by Dyer, in his Fleece, to mark out the time.

If verdant elder spreads
Her silver flowers; if humble daisies yield
To yellow crowfoot and luxuriant grass,
Gay shearing-time approaches.

Before shearing, the sheep undergo the operation of washing, in order to free the wool from the foulness it has contracted.

Upon the brim
Of a clear river, gently drive the flock,
And plunge them one by one into the flood:
Plung'd in the flood, not long the struggler sinks,
With his white flakes, that glisten thro' the tide;
The sturdy rustic, in the middle wave,
Awaits to seize him rising: one arm bears
His lifted head above the limpid stream,
While the full clammy fleece the other laves
Around, laborious, with repeated toil;
And then resigns him to the sunny bank,
Where, bleating loud, he shakes his dripping locks. DYER.

The shearing itself is conducted with a degree of ceremony and rural dignity; and is a kind of festival as well as a piece of labour.

At last, of snowy white, the gathered flocks
Are in the wattled pen innumerous press'd,
Head above head: and rang'd in lusty rows
The shepherds sit, and whet the sounding shears.
The housewife waits to roll her fleecy stores.
With all her gay-drest maids attending round.
One, chief, in gracious dignity enthron'd,
Shines o'er the rest, the pastoral queen, and rays
Her smiles, sweet beaming, on her shepherd-king.

A simple scene! yet hence BRITANNIA sees
Her solid grandeur rise: hence she commands
Th' exalted stores of every brighter clime,
The treasures of the sun without his rage. THOMSON.

A profusion of fragrance now arises from the fields of clover in flower. Of this plant there are the varieties of white and purple. The latter is sometimes called honeysuckle, from the quantity of sweet juice contained in the tube of the flower, whence the bees extract much of their honey.

For the following passage, we are indebted to Mr. Howitt's Work on the Seasons:— *Wild Flowers and their ancient names.*—Amongst the most interesting wild flowers now in full bloom, are the dog rose, the pimpernel, thyme, and white bryony. The last is one of our most elegant plants. Running up in the space of a month, over a great extent of hedge or thicket, and covering it with its long twining stems, spiral tendrils, green vine-like leaves, and graceful flowers, in a beautiful style of luxuriance, it is deserving more notice than it has yet received, and seems well calculated for clothing bowers and trellis-work. Many of our wild flowers derive much interest from the simple and poetical names given them by our rural ancestors; as the wind-flower; the snap-dragon; the shepherd's-purse; the bird's-eye; the fox-glove; the blue-bell; cuckoo-flower; adder's-tongue, and hart's-tongue; goldy-locks; honesty; heart's-ease; true-love; way-bread, and way-faring tree, &c. Many also bear the traces of their religious feelings; and still more remind us of the religious orders by whom they were made articles of their *materia medica,* or *materia sancta,* each flower being dedicated to that saint near whose day it happened to blow.

Woe's me—how knowledge makes forlorn;
The forest and the field are shorn
Of their old growth, the holy flowers;—
Or if they spring, they are not ours.
In ancient days the peasant saw
Them growing in the woodland shaw,
And bending to his daily toil,
Beheld them deck the leafy soil;
They sprang around his cottage door;
He saw them on the heathy moor;
Within the forest's twilight glade,
Where the wild deer its covert made;
In the green vale, remote and still,
And gleaming on the ancient hill.
The days are distant now, gone by
With the old times of minstrelsy,
When all unblest with written lore,
Were treasured up traditions hoar;
And each still lake and mountain lone
Had a wild legend of its own;
And hall, and cot, and valley-stream,
Were hallowed by the Minstrel's dream.
Then musing in the woodland nook,
Each flower was as a written book,
Recalling, by memorial quaint,
The holy deed of martyred saint,
The patient faith, which unsubdued,
Grew mightier through fire and blood.
One blossom, 'mid its leafy shade,
The virgin's purity portrayed;
And one, with cup all crimson dyed,
Spoke of a Saviour crucified:
And rich the store of holy thought
That little forest-flower brought.
Doctrine and miracle, whate'er
We draw from books, was treasured there.
Faith in the wild wood's tangled bound
A blessed heritage had found!
And Charity and Hope were seen
In the lone isle and wild ravine.

Crocus sativus.

CROCUS SATIVUS.—SAFFRON CROCUS.

Class III. TRIANDRIA.——Order I. MONOGYNIA.

Natural Order, IRIDES.—THE CORN-FLAG TRIBE.

Fig. (*a*) represents one of the segments of the corolla with a stamen and anther; (*b*) the 3-parted stigma which is the officinal saffron.

Our drawing of this beautiful and interesting Crocus, which affords the well-known Saffron of the shops, was taken from specimens obligingly communicated by Mr. Fiske of Walden, in Essex, where it was formerly much cultivated for medical use. It is a perennial, bulbous plant, and is supposed to have been originally brought from the East, where it first acquired that high reputation in medicine, which it has now almost lost in Europe. It is said that the saffron crocus was imported into England in the reign of Edward III., and that a Sir Thomas Smith introduced it into the neighbourhood of Walden, where it was probably first cultivated. It was, however, grown at an early period in Herefordshire; but it is now confined to a very small district in Cambridgeshire, at the foot of the Gogmagog hills. It appears to have been planted abundantly near Walden, at the end of the sixteenth and at the beginning of the seventeenth century. It migrated gradually into Cambridgeshire between the years 1675 and 1723, where the place of its growth was the large tract of ground between Saffron Walden and Cambridge, in a circuit of about ten miles. At present, however, it is, we believe, but little attended to by the farmer, and is now confined to two or three parishes only, of which Stapleford is one. Saffron has long been extensively cultivated in many countries on the continent, particularly in France and Spain; but English Saffron is generally preferred here to that which is imported, and may be distinguished by its parts being larger and broader. The bulbs may be planted in dry, light soil; but they succeed best in sand. About the first week in October the flowers begin to appear; but the seed are never perfected in this climate.

The saffron crocus has a roundish bulbous root, as large as a small nutmeg, which is solid, somewhat compressed, and covered with a coarse brown reticulated skin. From the bottom of this bulb are sent out many long slender fibres, which strike pretty deep into the ground, and are, properly speaking, the true roots. Immediately from the upper part of the bulb proceed the flowers on a long slender white tube, which together with the leaves are inclosed in a thin membranous sheath, opening on one side. The leaves are inclosed in a thin membranous sheath, opening on one side. The leaves are numerous, curved, linear, smooth, longer than the corolla, of a deep green colour, with a white central stripe, and are accompanied by the flowers. The corolla is large, and divided into six nearly elliptical segments, equal, and of a rich violet, or lilac colour. The stamens are shorter than the corolla, and surmounted by arrow-shaped, erect, pale yellow anthers. At the bottom of the tube is situated a roundish germen, crowned with the style, which is thread-shaped, the length of the corolla, and hangs out at one side between the segments. The stigma is deeply 3-parted, of a deep orange colour, fragrant, narrow, a little dilated upwards, and notched at the summit.

Distinctive Characters.—Saffron differs from the spring crocus (C. *vernus*) in having the stigma divided into three very long narrow segments, which are notched at the summit, of a deep orange colour, and fragrant. In the spring crocus the stigma is within the flower, divided into three wedge-shaped jagged lobes, which are inodorous, and the tube of the corolla is hairy at the mouth: while in the officinal species the throat of the corolla is smooth. The naked-flowering crocus (C. *nudiflorus*) is readily distinguished from the other two by the deeply-laciniated tufted segments of the stigma, and by the flowers, which are of a deep purple, appearing in autumn unaccompanied by leaves; the latter not being produced till December.

Saffron is unquestionably a native of Greece and Asia Minor, having been introduced into the south of Europe for cultivation as a medicinal plant; but it has naturalized itself in some parts of England, and is retained by Smith in the English Flora, on the authority of the Rev. Mr. Wood, who found it about Halifax, and of Mr. Whatley, who observed it near Derby. Of the genus, Miller admits only two species, the autumnal saffron, C. *sativus* and the spring crocus, C. *vernus*. Sir J. E. Smith describes three species as natives of Britain, C. *vernus*, *nudiflorus* and *sativus*; of the former there are several varieties, blue and purple, yellow, white, and striped. Linnæus reduces all the species to one, and supposes the vernal, and the autumnal, or officinal crocus, to be only varieties, notwithstanding the difference in the form of their stigmas, leaves, and bulbs, as well as in the time of their flowering. Besides these, the following species are cultivated in crocus beds; C. *versicolor*, or partly-coloured crocus, a kind which requires a light loam, while most of the others grow best in sand; C. *biflorus*, or yellow-bottomed; C. *mœsiacus*, or great yellow; C.

susianus, or cloth of gold; C. *sulphureus*, or sulphur-coloured; and C. *serotinus;* or late-flowered, blossoming in autumn, the leaves appearing at the same time with the flower. The Scotch crocus is said by Mr. Niell to be a beautiful striped variety.

The medicinal properties of this flower were early known to the Romans; as we find that the Cilician physicians who attended Anthony and Cleopatra in Egypt, recommended saffron as a medicine that cleared the complexion, by relieving the jaundice or the bile; which is an early indication of the prevalence of the "doctrine of signatures," for which the sect termed "*Rosicrusians*," or "*Theosophists*" became so notorious in the beginning of the 14th century. Dioscorides says that it is good for a surfeit. Pliny informs us that the best saffron grew in Cilicia, on a mountain called Corycus, and the next in quality on Mount Olympus. The Sicilian saffron was also esteemed by the Romans, who used it as a perfume. According to Pliny, it was steeped in wine, and then sprinkled over the theatres, filling every part with a sweet odour. The same author says, the wild crocus produces the best saffron, therefore the planting of it in gardens was deemed bad husbandry; for the plants became strong and large, while the flowers yielded but few chives, and would not pay the expense of planting. In a work, comparatively modern, (Townsend's Travels in Spain,) the plant is mentioned as growing in abundance in the neighbourhood of Salamanca, where without cultivation, it affords excellent saffron. Saffron is the κροκος of the Greeks; and is mentioned by Homer as one of the flowers that formed the genial couch of Jove and Juno.

Lindestolpe suspects that it was the νηπενθες, nepenthes, of Homer; while other writers have affixed this appellation to the Inula *Helenium* and Borago, but without consideration, for in the celebrated passage alluded to, the word is evidently not used as the name of any especial plant, but merely to express the quality of the soothing oblivious draught proffered to Telemachus by Helen.

Our plant is the *zaffaran*, or *zahafaran* of the Arabians, and was highly esteemed by the Hebrews, who called it *carcom*. It is the Crocus of the Latins, who named it after a beautiful youth, who was said to have been consumed by the impatience of his love, for Smilax was metamorphosed into the plant called by his name Smilax, or Bindweed. Ovid commemorates this fable, and Virgil also speaks of the crocus as one of the flowers upon which the bees most love to feed:—

——— "pascuntur et arbuta passim,
Et glaucas salices, casiamque, crocumque rubentem,
Et pinguem tiliam, et ferrugineos hyacinthos."—GEORG. 4.

"They feed also at large on arbutes, and hoary willows, and cassia, and glowing saffron, and fat limes, and deep coloured hyacinths." *Martyn's Translation*, p. 372.

By the old Chemists saffron was called, from its golden colour, *Aurum Philosophorum*; by others, *Sanguis Herculis, Aurum Vegetabile, Rex Vegetabilium*, and *Panacea Vegetabilis*. Its English name is evidently derived from its Arabian; which is nearly the same in French, Dutch, and German.

CULTURE. As several naturalists with whom we conversed were ignorant of the habits of this plant, and as it is imperfectly described in a work, which passes for an authority, we took the pains to obtain specimens from Samuel Fiske, Esq. of Saffron Walden, a gentleman who once cultivated it, and who is an accomplished botanist. In his communication, for which we are greatly indebted, he says, "The bulbs of the Crocus *sativus* are planted in July, in a rich light mould, with some well-rotted manure, in rows six inches apart, with three inches distant from each other in the rows.

"About the 18th of September, the leaves [or grass,] begin to appear in small pencil-like tufts, and during, and after the period of flowering, keep growing, and gradually cover the whole bed, continuing green all the winter, until May, when they die away, and the bed is bare all the next summer.

"The flowers begin to spring up about the 3rd of October, with a stem about an inch above the ground; they continue daily coming up for three or four weeks, six, eight, or more rising in succession from one plant. They are gathered every morning during the time of flowering, and the stigmata or chives, with part of the style plucked out for use, the rest of the flower being thrown away.

"The saffron, thus procured, is either dried in a room, in the sun, on papers, or made into cakes by a moderate heat and pressure.

"At the end of three years, when the leaf is entirely dead, the bulbs are taken up and cleaned, and the largest set by for planting again.

"The increase in the bulbs is very great, but being of no use except for replanting, what are not wanted for that purpose are thrown away; and as the produce of the saffron does not repay the expenses, it is now entirely out of cultivation here as an article of commerce."

Saffron is now discarded from practice as a medical agent; but still enters the composition of several officinal preparations, to impart an aromatic flavour and a rich colour.

OFF. PREP.—Confectio aromatica. L.D.
Decoctum Aloes comp. L.
Pilula Aloes c. myrrhâ. L.
Syrupus Croci. L.
Tinctura Aloes comp. L.

OFF PREP.—Tinctura Aloes. D.
——— Cinnamomi comp. L.
——— Croci sativi. E.
——— Rhei. L.
——— Rhei comp. L.

In the language of flowers the Saffron signifies *excess is dangerous.*

Chabot, Zinco Skinner St

Cucumis Colocynthis.

CUCUMIS COLOCYNTHIS.—BITTER CUCUMBER.

CLASS XXI. MONŒCIA.—ORDER IX. SYNGENESIA.

NATURAL ORDER, CUCURBITACEÆ.——THE GOURD TRIBE.

FIG. (*a*,) front and back of an anther; Fig. (*b*,) a seed.

THIS plant, which belongs to the same genus with the rich melon for the dessert, and the cucumber well known for its cooling qualities, is a native of the Cape of Good Hope, Nubia, and Turkey; flowering from May till August. It appears to have been cultivated in this country in the days of Turner.

It is a trailing plant, bearing a considerable resemblance in its herbage to the cucumber. The root is annual, whitish, branching, and strikes deep into the ground. The stems are slender, angular, branched, and rough with short hairs. The leaves are on long petioles, of a triangular form, deeply and obtusely sinuated, of a bright green on the upper surface, paler and clothed with short hairs underneath. The flowers are solitary, axillary, and of a yellow colour. The calyx of the *male* flower is bell shaped; the corolla monopetalous, bell-shaped, and divided at the margin, like the calyx, into five pointed segments; the filaments are three, two of which are bifid at the apex; they are all very short and inserted into the calyx; the anthers are linear, erect, and adhere together on the outer side. The *female* flower is like the male, but the filaments have no anthers; the germen is inferior, large, with a very short cylindrical style, and furnished with three stigmas, which are thick, gibbous, and bent outwardly. The fruit is a round berry or pepo, the colour of an orange, and smooth on the outside when ripe; trilocular, each cell containing numerous ovate, acute, compressed seeds, enveloped by a white spongy pulp.—The seeds are perfectly bland and highly nutritious, and we learn from Captain Lyon, that they constitute an important article of food in Northern Africa.

Burckhardt when travelling through Nubia found the ground covered with the plant, and states that it is very common in every part of the desert; and if we recollect right, it is mentioned more than once as being met with by Major Denham in his adventurous travels in Africa.

Thunberg tells us, that at the Cape of Good Hope the gourd is eaten, being rendered innocuous when properly pickled. This cucumber, which is common in the Levant, is supposed by many persons to be the one mentioned in the second Book of Kings, where the sacred historian says, that during a time of dearth in Gilgal, "one went out into the field to gather herbs, and found a wild vine, and, gathered thereof wild gourds, his lap full, and came and shred them into the pot of pottage: for they knew them not. So they poured out for the men to eat: and it came to pass, as they were eating of the pottage, that they cried out, and said [to Elisha,] Oh thou man of God, there is death in the pot. And they could not eat thereof," until the prophet had miraculously rendered the pottage wholesome.

The fruit is gathered in autumn, when it begins to turn yellow, and is then peeled and dried in a stove or in the sun.

QUALITIES AND CHEMICAL PROPERTIES.—The medullary substance of the fruit of colocynth is the part used in medicine. It is white, soft, and porous. The seeds which are imbedded in it are nearly inert. To the taste it is intensely bitter. Boiled in water it gives out a large portion of mucilage, so as to form a liquor of a gelatinous consistence. This is less active than colocynth itself. Alcohol also dissolves only part of its active matter. Experiments seem to prove that colocynth pulp consists chiefly of mucus, resin, the bitter principle, and some gallic acid. According to M. Vauquelin, an alcoholic tincture of colocynth yields by evaporation a brittle substance, of a yellow colour, partially soluble in water, the residue consisting of a white filamentous mass, changing to yellow. He terms it *Colocyntine*, and considers the active principle of the pulp to reside in it.

Poisonous Effects.—Given in over-doses, colocynth acts as a drastic irritating purgative. Dr. Fordyce narrates a case of a woman who was subject to cholic for thirty years in consequence of taking a strong infusion in beer. Orfila says, a man swallowed three ounces of colocynth, with the hopes of curing a malady with which he had been attacked for several days. A short time afterwards he felt severe pains in the epigastrium, and vomited copiously. At the expiration of two hours, he had copious alvine evacuations; the lower extremities became bent, his sight was obscured, and he could only hear with great difficulty; a slight delirium came on, which was succeeded by vertigo. He was made to drink a great quantity of milk, which produced vomiting: ten leeches were applied to the abdomen, and the symptoms yielded by degrees.

Medical Properties and Uses.—Both Hippocrates and Dioscorides were in the habit of employing this remedy as a drastic purgative in dropsy, lethargy, and maniacal cases; and were well acquainted with the violence of its effects, if injudiciously administered. Orfila, from his own observations, asserts that one or two drachms of it only, applied to the cellular tissue of a man's leg, produced death in the space of twenty-four hours. Its doses and combinations are now well ascertained, and although it is scarcely ever prescribed in its simple state, no cathartic is more highly prized, nor oftener used, than the compound extract of colocynth, which, combined with calomel, is the common aperient pill of most English practitioners.

Colocynth has proved very efficacious in dropsy.

Sydenham ordered a drachm to be boiled in water for six minutes, and after adding a drachm of Hoffmann's drops, and an ounce of syrup to a pound of the strained fluid, prescribed a table-spoonful to be taken three times a day.

It is scarcely necessary to observe that pure colocynth is so violent a remedy, that it should be prescribed only by a master of the art.

Off. Prep.—Extract. colocynthidis. L.
Extract. colocynth. comp. L. D.
Pil. aloes cum colocynth. E. D.

Gerard in his Historie of Plants, says, "being boiled in vinegre, and the teeth washed therewith, it is a remedy for the tooth-ache, as Mesues teacheth. And the seed is very profitable to keepe and preserve dead bodies with; especially if Aloes and Myrrhe be mixed with it."

Momordica Elaterium.

MOMORDICA ELATERIUM.—WILD, OR SQUIRTING CUCUMBER.

Class XXI. MONŒCIA.—Order VIII. MONADELPHIA.

Natural Order. CUCURBITACEÆ.——THE GOURD TRIBE.

Wild Cucumber is a hardy annual, growing spontaneously on waste grounds, in the south of Europe; flowering in June and July. It appears to have been introduced into this country at an early period, and is mentioned by Gerarde in 1596. With us, it is seldom cultivated except for curiosity. A few acres, however, are raised annually at Mitcham, in Surrey, and some other places, for the sake of the fruit, which yields the well known *elaterium* of medicine.

From the root, which is large and fleshy, somewhat resembling that of bryony, issue several thick, round, rough, and trailing stems, divided into many branches, extending every way three or four feet, and destitute of tendrils: both male and female on the same plant: the male flowers stand on short peduncles, but the female sit on the germen. The fruit is watery, of a coriaceous texture, pendulous, oblong, of a greyish green colour, and closely set with short bristles. The seeds when mature are black. When ripe, the pepo bursts on being touched, and throws out, with great violence, the juice and seeds, through the hole at the insertion of the footstalk.—Fig. (*a*) represents the stamens; (*b*) the pistil and germen.

The term *elaterium* was used by Hippocrates to denote internal application of a detergent or digestive nature, but more especially purgatives of a violent or drastic quality, from the word Ελαυνω, *agito moveo, stimulo,* but by succeeding authors it was exclusively applied to the active matter which subsides from the juice of the wild cucumber, either on account of its purgative properties, or because its capsule, when ripe, suddenly bursts with violence, and emits its contents to a considerable distance. Hence, also, its name "Squirting Cucumber."

Qualities and Chemical Properties.—According to Lewis, all the parts of this plant are purgative; an opinion, which he appears to have borrowed from Geoffroy, who says, "radicum vis cathartica major est quam *foliorum*; minor vero quam *fructuum.*" Lewis observes further, that in Holland, an extract from the root in wine, is exhibited for the elaterium, and found equally efficacious. M. M. Coste and Willemet, also recommend the root to be given in doses of from fifteen to thirty grains; but the conflicting accounts respecting the effects of the substance improperly termed "*extractum elaterii,*" (for it is not an extract, either in the chemical or pharmaceutical acceptation of the term, nor an inspissated juice, nor is it a fecula,) and the uncertainty with which different samples are administered, induced Dr. Clutterbuck to institute a series of experiments, from which it appears,

"That the most active principle belonging to this plant, is neither lodged in the *roots, leaves, flowers,* nor *stalks,* in any considerable quantity; nor is it to be found in the *body* of the fruit itself, nor in the *seeds* contained within it; *it was only in the juice around the seeds, therefore, that it could be looked for; and here it will be found, as is evident from the following trials.*

"This juice, as it first issues, without pressure, appears perfectly limpid and colourless. After it has stood for a short time it becomes turbid; and after some hours it slowly deposits a sediment, which, being collected and gently dried, without much exposure to light, is of a yellowish white colour, slightly tinged with *green.* When dried, it is very light and pulverulent. This is the real *elaterium,* and it is extremely active as a medicine; an *eighth* part of a grain seldom failing to purge violently, and often with vomiting previously. The quantity contained in the cucumber is exceedingly small. From forty cucumbers I obtained only six grains; so that a single cucumber contains about an ordinary dose. Half a bushel, charged at half a guinea in the market, furnished less than two drams of elaterium; hence we cannot wonder at the high price it bears in the shops. This, however, is unnecessarily enhanced by the mode of preparation, and its not being known distinctly in what part the active principle is lodged.

"The juice after the elaterium had subsided, was evaporated to an extract. Two grains of this were given in *six* cases. In *two* of them it produced several stools; *one* was vomited, and was purged on the following day; *one* was vomited in half an hour without purging; and in *two* it appeared to produce no effect.

I gave five grains of a similar preparation, obtained from Apothecaries' Hall, in *fourteen* instances. In *seven* of them it produced no effect; in *three* it appeared to operate gently by stool. Of the others there was no report.

"It appears from hence, that the juice, after the fecula, or *elaterium* has subsided, contains but very little of the active principle; and *that*, probably, from the fecula having imperfectly subsided.

"With regard to the *sensible* and *chemical* properties of the fecula, which subside spontaneously from the juice contained within the cucumber, as above described, and which alone appears to be the true elateriam, I have already observed that it is a light, pulverulent substance, of a very pale green colour, approaching to yellowish white. To the *taste* it is acrid and bitterish. The juice itself, as it escapes from the cucumber, readily inflames the skin of the fingers; and on getting accidentally into the eye in one instance, it occasioned severe pain and inflammation, with an erysipelatous swelling of the eyelids, that continued till the following day.

"Much of this medicine, as it is ordinarily met with in the shops, is of a dark green colour, approaching to black: it is likewise compact and heavy, and breaks with a shining resinous fracture. This is usually prepared by strong pressure of the cucumber, and consists of course, in great part, of the ordinary juices, as well as the elaterium. It is very uncertain in its operation, and very weak, in comparison with that which has been properly prepared. The quantity is much increased by this mode of preparation; and hence it is sold at a much lower rate. The difference in price of this drug is extreme; the Apothecaries Company charging sometimes as much as twelve shillings a dram, while it is sold at Corbyn's and some other shops, at four shillings. The quality, indeed, is superior at the Hall; but in no degree proportioned to the price. Yet I do not believe that either obtains an exorbitant profit; the difference arising chiefly from the mode of preparation, which, by the Apothecaries' Company, who adhere rigidly to the directions of the Pharmacopœia, is extremely wasteful, as I have satisfied myself by inspection.

"With respect to the *chemical* properties of this substance, I shall enter no further into these, than is connected with the purposes of pharmacy.

"*Water*, whether *hot* or *cold*, appears to have no action on pure elaterium. An infusion of eight grains, when filtered, produced no effect. Its insolubility in water, indeed, might be inferred from its spontaneous subsidence in the fluid: yet it is said, by Dr. Woodville, in his 'Medical Botany,' to be soluble both in spirit and in water. What it is that keeps the elaterium in a state of solution in the juice as first discharged, I have not ascertained."

For this problem Dr. Thompson proposes the following solution. He says, "The insolubility of elatin in water suggests a query:—What keeps it in solution in the juice of the fruit? Were I to suggest an opinion, it would be, that elatin does not exist completely formed in the fruit; the fecula, which subsides when the juice runs out, is in part the consequence of an oxidizement of it; for it becomes turbid soon after it is exposed to the air; and it loses much of its activity, or rather it does not become so active, when it is dried in a bright sun-shine, as when it is dried in the shade. Now we know that light abstracts oxygen from substances containing it; as for instance from metallic oxides, which are partially reduced by exposure to light; and we may thence infer, that substances which would attract and combine with oxygen in the shade, may be prevented doing so in a bright light; and, therefore, in this case, owing to the superior attraction of light for oxygen, the fecula may be prevented from acquiring its due share of oxygen; and consequently from acquiring the peculiar state requisite for exerting its energy on the system.

"The *elaterium* procured from the spontaneous subsidence of the juice, without expression, and which may be considered as in a state of purity, dissolves almost entirely in alcohol. Of the best specimens from the Hall, spirit dissolves more than a half, while of inferior sorts, a *fourth* part is thus dissolved. The residue, after repeated affusions of spirit, is quite inert as a medicine. The active principle therefore may be considered as of a *resinous* nature; by which I only mean, however, that it is soluble in alcohol, which it tinges of a pale green colour. When the spirit is slowly evaporated, a resinous looking extract is obtained, which is very inflammable, and which is extremely active as a medicine; the *sixteenth* part of a grain generally producing considerable purging, and often vomiting. When the dose was increased to one fourth of a grain, the effect was more considerable, and often took place in a very few minutes."

The foregoing details were communicated to the President of the College of Physicians, who requested Dr. Paris to report upon them. He accordingly, in conjunction with Mr. Faraday, entered upon a new series of experiments; "the results of which will show, that although Dr. Clutterbuck found that an *eighth* part of a grain of elaterium seldom failed to purge violently, yet strange as it may appear, that not more than one grain in ten of elaterium, as it occurs in commerce, possesses any active properties, and that this decimal part is a vegetable proximate principle, not hitherto noticed," to which Dr. Paris gives the name of *Elatin*. A full detail of these experiments has been published by him,[a] and he expresses the chemical composition of elaterium in the following manner:

[a] Vide Pharmacologia, edit. 6th, fol. 226.

Water	4
Extractive	2·6
Fecula	2·8
Gluten	·5
Woody matter	2·5
Elatin and Bitter principle	1·2
	10 grains.

Dr. Paris further remarks,

"That the whole of the *elatin* does not separate itself from its native juice by spontaneous subsidence, and that on this account the supernatant liquor possesses some powers as a cathartic. We cannot be surprised, therefore, that the elaterium of commerce should be a very variable and uncertain medicine; for, independently of the great temptation which its high price holds out for adulterating it, which is frequently done with starch, it necessarily follows, that where the active principle of a compound bears so small a proportion to its bulk, it is liable to be affected by the slightest variation in the process for its preparation, and even by the temperature of the season; where pressure is used for obtaining the juices, a greater or less quantity of the inactive parts of the cucumber will be mixed with the *elatin*, in proportion to the extent of such pressure, and the elaterium will, of course, be proportionally weak. There is one curious result obtained in my experiments which deserves notice, *viz.* that there is a bitter principle in the elaterium, very distinct from its extractive matter, and totally unconnected with its activity, for I diluted the solution obtained in experiment G, and swallowed it, but it produced upon me no effect, except that which I generally experience upon taking a powerful bitter—an increased appetite; and yet notwithstanding this fact, when in combination with *elatin*, it is far from being inert, since this body is considerably quickened by its presence."

Mr. Barry has made some trials on the elaterium prepared according to the process of Dr. Clutterbuck, and found that out of ten grains of the first sample, 5·5 were soluble in spirit of the specific gravity of 809; of the second 6·2; and of the third 6·4; of that prepared by the same process at Apothecaries' Hall, six grains were soluble. The residue, insoluble in the spirit, was administered to a patient, and ascertained to be perfectly inert.

"Mention is made, by Bergius, of *two* kinds of elaterium, the *white* and the *black*. The *white* is prepared from the juice that flows without pressure from the fruit simply cut open. The juice is suffered to form a deposit, which is dried by the heat of the sun. It seems to be the precise substance which I have described above. *Bergius* says, it is dissolved by digestion in water, but this appears to be a mistake.

"The *black* elaterium is prepared from the expressed juice of the cucumber altogether, and of course contains a great deal of extractive and colouring matter along with the real elaterium. This black preparation, instead of being light and pulverulent, is said to be heavy and glutinous when masticated, and sticks to the teeth; it is irritating to the fauces. It dissolves in considerable proportion in *water*, but only partially in *spirit*. It is also deliquescent in some degree. The white is more *resinous*, the black *gummy*, in its properties.

"The mode of preparing the elaterium in different pharmacopœias is far from uniform, and the medicine varies accordingly, independent of adulteration. According as more or less *pressure* is used, the medicine will approach to the *black* or *white* species, described above. It appears, from the account I have given, that pressure is not at all necessary in order to obtain the elaterium, and can only serve to deteriorate its quality, and render the dose uncertain. It is in this way that I account for the large doses prescribed by some writers, without any caution. Sydenham recommends two grain doses without reserve; and Woodville extends the dose from half a grain to three grains. These quantities, where the medicine is in the most active form, would, I think, be often attended with danger.

"The method recommended by the London College, and which is strictly followed at Apothecaries' Hall, is the least objectionable, as it directs only the slightest pressure to be made use of. It is, however, liable to objection in other respects, from it not having been known that the elaterium resides *exclusively* in the juice lodged in the hollow of the cucumber. Hence this has been often wasted and lost. Another source of waste, and that to a great amount, is the bursting of many of the cucumbers during their removal from the country.

"I have obtained the greatest quantity of the medicine by the following method:—

"The cucumbers should be gathered when nearly as ripe as possible, and without violence, that might endanger their bursting.[a] They should then be wetted by the affusion of cold water, that less of the juice when they are cut may adhere to the external surface. In this state they should be cut through longitudinally, and the juice allowed to strain through a fine sieve,

[a] The Dublin College directs them to be gathered *before* they are ripe; by this means the chance of bursting is avoided; but it is a question whether the medicine is equally active as at a later period.

placed in a large earthenware vessel. The seed and surrounding pulp should be scooped out upon the sieve, and washed with repeated affusions of cold water, by which they will be freed from all adhering juice. Something will be saved also by afterwards rincing the split cucumbers themselves in cold water, from which a portion of elaterium may be collected.

"After standing a few hours, a sediment is formed from which the clear liquor is to be poured off; it is then to be thinly spread on fine linen, and exposed to the air to dry: a gentle warmth may be employed without injury; but the access of sunshine destroys the fine green colour which the substance otherwise acquires."—*(Clutterbuck.)*

Since the foregoing experiments were tried by Drs. Clutterbuck, Paris, and Faraday, a further series of investigations has been made by Mr. Hennell, of Apothecaries' Hall, and Dr. Morries, of Edinburgh. From the researches of these gentlemen, carried on wholly independently of each other, it appears, that even the *Elatin* of Drs. Paris and Farady is not a simple proximate principle, but a compound body, consisting of the true active ingredient now named *Elaterine*, mixed with a green resin-like matter, similar to chlorophyll or the colouring matter of leaves.

"Elaterine may be procured by evaporating the alcoholic infusion of Elaterium to the consistence of thin oil, and throwing it into boiling distilled water; upon which a white crystalline precipitate is formed, and more falls down as the water cools. This precipitate, when purified by a second solution in alcohol, and precipitation by water, is pure Elaterine. In mass it has a milky appearance. The crystals are microscopic rhombic prisms, striated on the sides. It is intensely bitter. It does not dissolve in the alkalis nor in water, is sparingly soluble in diluted acids, but easily soluble in alcohol, ether, and fixed oil. It has not any alkaline reaction on litmus. This substance, it is very evident, from the above condensed account, is a very different body from the *Elatin* previously mentioned."[a]

Elaterine, as it has been named by Dr. Morries, or, *Elateria* as it has been called by Mr. Hennell, may be procured from the Elatin of Drs. Paris and Faraday, by "acting on that compound body by ether, when a substance is left which is soluble in alcohol; and which on leaving the tincture at rest to spontaneous evaporation, crystallizes in acicular tufts. These crystals are nearly colourless, they are scarcely soluble in water, and the undiluted acids. They do not form neutral salts with acids. They consist of seventeen parts of carbon, eighteen of oxygen, and eleven of hydrogen."

"The activity of Elatin as a cathartic, is (continues Dr. Thompson) almost incredible; it operates violently when only one minim of an alcoholic tincture, consisting of one grain of *Elateria* dissolved in ninety-six minims of strong alcohol, is administered. Hence it operates in doses of less than the 96th part of a grain. This extreme activity has hitherto prevented this principle being employed medicinally in its pure state, as a cathartic, even in the alcoholic solution.

Poisonous Effects.—Elaterium very much resembles the Helleborus *niger* in its effects.

"Elaterine is a poison of very great activity. A tenth of a grain, as I have myself witnessed, will sometimes cause purging in man; and a fifth of a grain in two doses administered at an interval of twenty-four hours to a rabbit, killed it seventeen hours after the second dose. The best British Elaterium contains 26 per cent. of this active principle, the worst 15 per cent.; but French Elaterium does not contain above 5 or 6 per cent." These facts, as Dr. Christison continues, sufficiently account for the great irregularity in the effects of the ordinary drug, as a cathartic.

[a] Vide Christison, p. 525; Dr. Morries' Essay in the Edinburgh Medical and Surgical Journal, xxxv. 339; and Mr. Hennell's paper in the Journal of the Royal Institution, i. 592.

Cummingia trimaculata

CUMMINGIA TRIMACULATA.[a]

Class VI. HEXANDRIA.—Order I. MONOGYNIA.

Natural Order, LILIACEÆ.——THE LILY TRIBE.

Generic character.—Perianth half-superior, campanulate, six-cleft, deciduous. Anthers emarginate at the base; filaments very short, wide at the insertion, conniving. Ovary three-celled. Ovules indefinite. Stigma covered with frosted points. Capsule three-celled, dehiscing through the back of the cells; cells few-seeded—Don's Gard. and Botany.

Specific Character.—Plant a bulbous perennial. Stem erect, rigid. Leaves linear, channelled, glabrous, recurved, spreading. Flowers in loose panicles. Pedicels thread-shaped, very smooth. Perianth monopetalous, ten-nerved; limb spreading, longer than the tube, three-spotted. Filaments obcuneate. Anthers yellow. Style awl-shaped, white.

The eagerness so universally manifested to possess blue-flowering plants will create for the present little species, when brought more generally into cultivation, and its qualifications as a becoming and ornamental plant more widely known, a greater degree of solicitude than has hitherto been extended towards it. The apathy and indifference with which but too many of the most lovely of Flora's kingdom are regarded, when the first feelings which their novelty excited have subsided, is a matter continually exhibited, and our greenhouses and flower-gardens are thus prevented from being the gaily decorated places they might be with a judicious selection of the plants already in the country. Indeed, the introduction of new species, is in some degree at least, an evil, when mere novelty can usurp the place of positive merit, and really deserving and engaging plants are disregarded with the sole view of making room for a new candidate of inferior pretensions.

The subject of our embellishment is a Chilian species, and was first known in this country through plants collected by the daughter of the British Consul at Valparaiso, and forwarded to a friend in England, who presented them to the Chelsea Botanic Garden in 1829. The specimen from which our figure was taken in the month of June, 1842, at Mr. Knight's nursery, was received by that gentleman in 1840, from a friend at Valparaiso, where it is known amongst the natives by the name of Paxero, or Paterita.

The flower-stalk grows about a foot high, and is crowned with a loose and spreading panicle of pretty, pendulous, bell-shaped blossoms, attached to short and attenuated, flexile pedicels. The leaves are long and narrow, and surround the flower-stalk without rising high enough to interfere with the exposure of the flowers; but instead, they are spread out with a pleasing gentle curvature.

It flowers in May and June, and when grown in a pot is a neat plant to place on the front stage of a greenhouse. To have fine flowering specimens for the open borders, the bulb should be potted early in a light sandy loam, and started into growth in a frame, to be planted out, as soon as it can be safely done, without injury from frost, in a warm border prepared with a similar soil. But the bulbs may be allowed to remain in the ground all winter, as they merely require to have the ground covered with some protecting material to preserve them uninjured from severe frosts.

Cummingia is a genus formerly incorporated with *Conanthera*, but separated by Mr. D. Don, and named in compliment to Lady Gordon Cumming. The specific name of the present species is expressive of the large dark spot at the base of each of the three petals.

The following extracts are taken from the pages of the Every Day Book.

The ears are fill'd, the fields are white,
The constant harvest-moon is bright;
To grasp the bounty of the year,
The reapers to the scene repair,
With hook in hand, and bottles slung,
And dowlas-scrips beside them hung.
The sickles stubble all the ground,
And fitful hasty laughs go round;
The meals are done as soon as tasted,
And neither time nor viands wasted
All over—then the barrels foam—
The "Largess"-cry, the "Harvest-home!"

[a] We are indebted for the figure and description of this plant to Mr. Paxton's agreeable work, the "Magazine of Botany."

The "Mirror of the Months" likens August to "that brief, but perhaps best period of human life, when the promises of youth are either fulfilled or forgotten, and the fears and forethoughts connected with decline have not yet grown strong enough to make themselves felt; and consequently when we have nothing to do but look around us, and be happy." For it is in this month that the year "like a man at forty, has turned the corner of its existence; but, like him, it may still fancy itself young, because it does not begin to feel itself getting old. And perhaps there is no period like this, for encouraging and bringing to perfection that habit of tranquil enjoyment, in which all true happiness must mainly consist; with *pleasure* it has, indeed, little to do; but with *happiness* it is every thing."

The author of the volume pursues his estimate by observing, that "August is that debateable ground of the year, which is situated exactly upon the confines of summer and autumn; and it is difficult to say which has the better claim to it. It is dressed in half the flowers of the one, and half the fruits of the other; and it has a sky and a temperature all its own, and which vie in beauty with those of the spring. May itself can offer nothing so sweet to the senses, so enchanting to the imagination, and so soothing to the heart, as that genial influence which arises from the sights, the sounds, and the associations, connected with an August evening in the country, when the occupations and pleasures of the day are done, and when all, even the busiest, are fain to give way to that 'wise passiveness,' one hour of which is rife with more real enjoyment than a whole season of revelry. Those who will be wise (or foolish) enough to make comparisons between the various kinds of pleasure of which the mind of man is capable, will find that there is none (or but one) equal to that felt by a true lover of nature, when he looks forth upon her open face silently, at a season like the present, and drinks in that still beauty which seems to emanate from every thing he sees, till his whole senses are steeped in a sweet forgetfulness, and he becomes unconscious of all but that *instinct of good* which is ever present with us, but which can so seldom make itself felt amid that throng of thoughts which are ever busying and besieging us, in our intercourse with the living world. The only other feeling which equals this, in its intense quietude, and its satisfying fulness, is one which is almost identical with it,—where the accepted lover is gazing unobserved, and almost unconsciously, on the face of his mistress, and tracing there sweet evidences of that mysterious union which already exists between them.

"The whole face of nature has undergone, since last month, an obvious change; obvious to those who delight to observe all her changes and operations, but not sufficiently striking to insist on being seen generally by those who can read no characters but such as are written in a *text* hand. If the general *colours* of all the various departments of natural scenery are not changed, their *hues* are; and if there is not yet observable the infinite variety of autumn, there is as little the extreme monotony of summer. In one department, however, there is a general change, that cannot well remain unobserved. The rich and unvaring green of the corn-fields has entirely and almost suddenly changed to a still richer and more conspicuous gold colour, more conspicuous on account of the contrast it now offers to the lines, patches, and masses of green with which it every where lies in contact, in the form of intersecting hedge-rows, intervening meadows, and bounding masses of forest. These latter are changed too; but in *hue* alone, not in colour. They are all of them still green; but it is not the fresh and tender green of the spring, nor the full and satisfying, though somewhat dull, green of the summer; but many greens, that blend all those belonging to the seasons just named, with others at once more grave and more bright; and the charming variety and interchange of which are peculiar to this delightful month, and are more beautiful in their general effect than those of either of the preceding periods: just as a truly beautiful woman is perhaps more beautiful at the period immediately before that at which her charms begin to wane, than she ever was before. Here, however, the comparison must end; for with the year its incipient decay is the signal for it to put on more and more beauties daily, till, when it reaches the period at which it is on the point of sinking into the temporary death of winter, it is more beautiful in general appearance than ever."

Lammas-day. So stands the first of August in our English almanacs, and so it stands in the printed *Saxon Chronicle*. "Antiquaries," says Brand, "are divided in their opinions concerning the origin of *Lammas* Day; some derive it from Lamb-Mass, because on that day the tenants who held lands under the cathedral church in York, which is dedicated to St. Peter ad Vincula, were bound by their tenure to bring a live lamb into the church at high mass: others derive it from a supposed offering or tything of lambs at this time." Various other derivations have been imagined. Blount, the glossographer, says, that Lammas is called Hlaf-Mass, that is Loaf-Mass, or Bread-Mass, which signifies a feast of thanksgiving for the first fruits of the corn. It was observed with bread of new wheat, and in some places tenants are bound to bring new wheat to their lord, on or before, the first of August.

Dahlia?

DAHLIA.—THE DAHLIA.

Class XXII. DICŒCIA.—Order I. MONANDRIA.

Natural Order, HAMELIDEÆ.—THE WITCH-HAZEL TRIBE.

The Dahlia* is a small genus of Composite flowers, of which three species only are known, all natives of Mexico. D. variabilis itself is, in its wild state, a bushy herbaceous plant, seven or eight feet high, with single purple or lilac flowers, and is by no means remarkable for its beauty. In cultivation, however, it is so readily improved in size and form, and sports into such endless varieties in stature, leaves and flowers, that it has become the most extensively cultivated florist's plant of the present day. Its innumerable sorts are the glory of our gardens in the autumn, and are quite unrivalled at that season of the year: they are, however, destroyed by the earliest frosts. Each season produces its favourite varieties, and these are in their turn eclipsed by others of a newer or a choicer form. For those that are most in vogue the nurserymen's lists must be consulted, for their's is but a fleeting reputation. The Dahlia was named in honour of Dahl, a Swedish botanist, and the following account of its introduction is to be found in the Transactions of the Horticultural Society, by R. A. Salisbury, Esq., April 8th, 1808. "No flowers which have been lately introduced into the gardens of this island are more showy than the Dahlias; and they possess the additional merit of being produced at a season when most others are decaying; and by a little management these plants may be made to blossom early. The first account I am able to trace of these plants which are natives of *Mexico*, is in *Hermandez'* History of that country, published in 1661. The first species, *Dahlia Sambucifolia* was introduced into this country by the Right Honourable Lady Holland, who sent seeds from Madrid in May, 1804, which have produced all the varieties. Though the seeds arrived so late in this country several of them flowered the succeeding autumn at Holland House, by the constant attention of Mr. Buonanti in pressing out the moisture, which is collected among the florets after the calyx closes; a number of seeds were ripened in 1805, and some of these were liberally communicated to me in April, 1806. I had no opportunity of sowing them till May, when they were put into pots of light rich earth, plunged to their rims in a bed of dung, which had nearly lost its heat, having been made two months. A dozen plants soon came up, and on the first of *June*, being about 5 inches high as well as stiff, from throwing down the glasses in the day-time, were transplanted into separate pots of 2½ inches diameter. The two strongest were then removed without breaking any of their fibres into larger pots of very rich mould, and five into pots a size larger, of poor sandy mould; all of those plants were twice more transplanted into somewhat larger pots before the tenth of *August*, by which time the two largest were four feet high, and the others not much shorter, though less branched; they were all removed from the hot-bed frame, having been exposed to the open air both night and day, the last month. They all grew rapidly in *August* and *September*, but I despaired of seeing any flowers till the middle of the latter month, when almost every branch terminated in a flower; the first of which opened on the 7th of October. All the plants ripened seeds more or less, and were suffered to remain in the ground with their decaying stems uncut till a frost, which was severe enough to freeze the borders, an inch deep. M. Thiery Menonville, in the interesting detail of his journey to *Guaxaca*, published in 1778, is the next author, who to the best of my knowledge has noticed any species of *Dahlia*. It is well known that this botanist was employed by the French Minister, to steal the *Cochineal Insect* from the Spaniards. In this dangerous mission, he tells us, that having entered one of the gardens in the suburbs of that city, adjoining to a plantation of *Nopals* upon which the insect feeds, he was struck with the beauty "d'une Astere violette et double, aussi grande que celles de France, mais produite par un arbuste très semblable pour les feuilles pinnées à notre sureau." From the violet colour of the flower, I am inclined to think that this is the species which I have called "Dahlia Sphondylifolia."—"The roots (says my brother in his outlines of botany) of the *Dahlia*, although fleshy, and abounding in farina, have so disagreeable a flavour as not to be esculent; but their splendid

* The species which we have represented is termed *rouge et noir*.

blossoms make amends for their unsavory roots." A mixture of loam and sand is a good soil for this shrub; young cuttings will root readily in sand under a hand glass.

In the language of flowers, Dahlia stands for *Instability*. And flowers do speak a language, a clear and intelligible language: ask Mr. Wordsworth, for to him they have spoken, until they excited "thoughts that lie too deep for tears;" ask Chaucer, for he held companionship with them in the meadows; ask any of the poets, ancient or modern. Observe them reader, love them; linger over them; and ask your own heart if they do not speak affection, benevolence, and piety. The eloquence of flowers is not perhaps so generally understood in this country as it might be, but Mr. Bowring scarcely does us justice in the following observations:—

"In the Peninsula the wildest flowers are the sweetest. There are hedges of myrtles, geraniums and pomegranates, and towering aloes. The sun-flower and the bloody warrior *(Aleli grosero)* occupy the parterre: they are no favourites of mine. Flowers! what a hundred associations the word brings to my mind! Of what countless songs, sweet and sacred, delicate and divine, are they the subject! A flower in England is something to the botanist,—but only if it be rare; to the florist,—but only if it be beautiful: even the poet and the moralizer seldom bend down to its eloquent silence. The peasant never utters to it an ejaculation—the ploughman (all but one) carelessly tears it up with his share—no maiden thinks of wreathing it—no youth aspires to wear it: But in Spain, ten to one but it becomes a minister to love, that it hears the voice of poetry, that it crowns the brow of beauty. Thus how sweetly an anonymous cancionero sings:—

"Put on your brightest richest dress,
Wear all your gems, blest vale of ours!
My fair one comes in her loveliness,
She comes to gather flowers.

"Garland me wreaths, thou fertile vale;
Woods of green your coronets bring;
Pinks of red, and lilies pale,
Come with your fragrant offering.
Mingle your charms of hue and smell,
Which Flora wakes in her spring tide hours!
My fair one comes across the dell,
She comes to gather flowers.

"Twilight of morn! from thy misty tower
Scatter the trembling pearls around,
Hang up thy gems on fruit and flower,
Bespangle the dewy ground!
Phœbus, rest on thy ruby wheels—
Look, and envy this world of ours;
For my fair one now descends the hills
She comes to gather flowers.

"List! for the breeze on wings serene
Through the light foliage sails;
Hidden amidst the forest green
Warble the nightingales!
Hailing the glorious birth of day
With music's best, divinest powers,
Hither my fair one bends her way,
She comes to gather flowers."

London Magazine, Spanish Romances.

For the most part of our countrymen, I fear they do not allow themselves leisure to admire or enjoy the beauties of nature; yet it cannot be said that they are utterly insensible to them; for with regard to flowers at least, we may observe, that on Sundays every village beau, nay, every straggling townsman who comes on that day within reach of a flower, has one in his button hole.

Bellis perennis.

BELLIS PERENNIS.—THE COMMON DAISY.

Class XIX. SYNGENESIA.—Order VII. POLYGAMIA SUPERFLUA.

Natural Order, COMPOSITÆ.——COMPOUND FLOWERS.

Root creeping; flower-stalk leafless.—Leaves numerous, lying flat on the ground; inversely egg-shaped, crenate, slightly hairy, tapering at the base; stalks from two to four inches long, round, hairy, each bearing a single flower, having a yellow conical disk, and a white ray tinged with purple. A variety, called the Hen and Chicken Daisy, sometimes occurs, in which several small stalks, bearing diminutive flowers, spring from the flower. Perennial: flowers from March to November, but individuals may be seen in flower at all seasons; grows in pastures and meadows, abundantly.

The following agreeable passages are from Leigh Hunt's Indicator:—

"We owe a long debt of gratitude to the daisy; and we take this opportunity of discharging a millionth part of it. If we undertook to pay it all, we should have had to write such a book, as is never very likely to be written,—a journal of numberless happy hours in childhood, kept with the feelings of an infant and the pen of a man. For it would take, we suspect, a depth of delight and a subtlety of words, to express even the vague joy of infancy, such as our learned departures from natural wisdom would find it more difficult to put together, than criticism and comfort, or an old palate and a young relish.—But knowledge is the widening and the brightening road that must conduct us back to the joys from which it led us; and which it is destined perhaps to secure and extend. We must not quarrel with it's asperities, when we can help.

We do not know the Greek name of the daisy, nor do the dictionaries inform us; and we are not at present in the way of consulting books that might. We always like to see what the Greeks say to these things, because they had a sentiment in their enjoyments. The Latins called it Bellis or Bellus, as much as to say, Nice One. With the French and Italians it has the same name as a Pearl,—Marguerite, Margarita, or generally, by way of endearment, Margheretina. The same word was the name of a woman, and occasioned infinite intermixtures of compliment about pearls, daisies, and fair mistresses. Chaucer, in his beautiful poem of the Flower and the Leaf, which is evidently imitated from some French poetess says,—

> And at the laste there began anon
> A lady for to sing right womanly
> A bargaret in praising the daisie,
> For as me thought among her notes sweet,
> She said "Si douset est la Margarete."

"The Margaret is so sweet." Our Margaret however, in this allegorical poem, is undervalued in comparison with the laurel; yet Chaucer perhaps was partly induced to translate it on account of its making the figure that it does; for he has informed us more than once, in a very particular manner, that it was his favourite flower. There is a very interesting passage to this effect in his Legend of Good Women; where he says, that nothing but the daisied fields in spring could take him from his books.

Mr. Wordsworth undertakes to patronize the Celandine, because no body else will notice it; which is a good reason. But though he tells us, in a startling piece of information, that

> Poets, vain men in their mood!
> Travel with the multitude,

yet he falls in with his old brethren of England and Normandy, and becomes loyal to the daisy.

> Be violets in their secret mews
> The flowers the wanton Zephyrs chuse;
> Proud be the rose, with rains and dews
> Her head impearling;
> Thou liv'st with less ambitious aim,
> Yet hast not gone without thy fame;
> Thou art indeed, by many a claim,
> The poet's darling.
>
> * * * * * * * *

A nun demure, of lowly port;
Or sprightly maiden of Love's court,
In thy simplicity the sport
Of all temptations;
A queen in crown of rubies drest;
A starveling in a scanty vest;
Are all, as seem to suit thee best,
Thy appellations.

A little Cyclops, with one eye
Staring to threaten or defy,
That thought comes next, and instantly
The freak is over;
The freak will vanish, and behold!
A silver shield with boss of gold,
That spreads itself, some fairy bold
In fight to cover.

I see thee glittering from afar;
And then thou art a pretty star,
Not quite so fair as many are
In heaven above thee;
Yet like a star, with glittering crest,
Self-poised in air, thou seem'st to rest;—
May peace come never to his nest,
Who shall reprove thee.

Sweet flower; for by that name at last,
When all my reveries are past,
I call thee and to that cleave fast;
Sweet silent creature;
That breath'st with me in sun and air,
Do thou, as thou art wont, repair
My heart with gladness, and a share
Of thy meek nature.

Mr. Wordsworth calls the daisy "an unassuming common-place of Nature," which it is; and he praises it very becomingly for discharging it's duties so cheerfully, in that universal character. But we cannot agree with him in thinking that it has "a homely face." Not that we should care, if it really had; for homeliness does not make ugliness; but we appeal to every body, whether it is proper to say this of la belle Marguerite. In the first place, it's shape is very pretty and slender, but not too much so. Then it has a boss of gold, set round and irradiated with silver points.

The daisy, being chiefly white, makes such a beautiful shew in company with the butter cup. But this is not all; for look at the back, and you find its fair petals blushing with a most delightful red. And how compactly and delicately is the neck set in green!

Montgomery, the Bard of Sheffield, has not forgotten the daisy:

There is a flower, a little flower,
With silver crest and golden eye,
That welcomes every changing hour,
And weathers every sky.

The prouder beauties of the field
In gay but quick succession shine,
Race after race their honours yield—
They flourish and decline.

But this small flower, to nature dear,
While moons and stars their courses run,
Wreathes the whole circle of the year,
Companion of the sun.

The lambkin crops its crimson gem,
The wild-bee murmurs on its breast,
The blue-fly bends its pensile stem,
Light o'er the sky-lark's nest.

'Tis Flora's page: in every place,
In every season, fresh and fair,
It opens with perennial grace,
And blossoms every where.

On waste and woodland, rock and plain,
Its humble buds unheeded rise!
The rose has but a summer reign,
The *Daisy* never dies.

We will conclude with the charming lines of Burns:

To a Mountain Daisy. On turning one down with the Plough, in April, 1786.

Wee, modest, crimson-tipped flow'r,
Thou's met me in an evil hour;
For I maun crush among the stoure
Thy slender stem;
To spare thee now is past my pow'r,
Thou bonnie gem.

Alas! it's no thy neebor sweet,
The bonnie Lark, companion meet!
Bending thee 'mang the dewy weet!
Wi' spreckled brest,
When upward springing, blythe, to greet
The purpling east.

Cauld blew the bitter biting north
Upon thy early, humble birth;
Yet cheerfully thou glinted forth
Amid the storm,
Scarce rear'd above the parent earth
Thy tender form.

The flaunting flow'rs our gardens yield,
High shelt'ring woods and wa's maun shield,
But thou beneath the random bield
O' clod or stane,
Adorns the histie stibble field,
Unseen, alane.

There, in thy scanty mantle clad,
Thy snawy bosom sunward spread,
Thou lifts thy unassuming head
In humble guise;
But now the share uptears thy bed,
And low thou lies.

Stoure, dust. *Glint*, to peep. *Bield*, shelter. *Histie*, dry.

The Daisy is the emblem of innocence.

Leontodon Taraxacum.

LEONTODON TARAXACUM.—COMMON DANDELION.

Class XIX. SYNGENESIA.——Order I. POLYG. ÆQUALIS.

Natural Order, COMPOSITÆ.

The seeds (*a*) are solitary, oblong, each enclosed in a scabrous achenium; and supporting a simple radiated pappus, on a long pedicel.—Fig. (*b*) is a floret somewhat magnified, showing the germen and five united anthers surrounding the forked style.

This is a well known perennial inhabitant of our meadows, pastures, and gardens, generally despised as a troublesome weed; it flowers from April till late in autumn.

The root is spindle-shaped, white and fleshy within, and covered externally with a brown epidermis. The ascending axis being abortive all the leaves spring from the crown of the root; they are numerous, spreading, smooth, of a bright green, tapering towards the root and runcinate, or deeply cut into sharp lobes, unequal, and pointing downwards. The flower stalk, or, as it is termed in botanical language, scape, is erect, round, smooth, very brittle, tubular, and terminated by a single capitulum of flowers, or rather florets of a golden yellow colour, which expand in fine weather only, and close in the evening. The common calyx, or, as it is now more correctly named, the involucrum, is imbricated and oblong, and the bracteæ of which it is formed are surrounded by a whorl of a shorter patent (and in the officinal species reflexed) bracteolæ. The head of flowers is composed of very numerous monopetalous, equal, ligulate, truncated, five-toothed florets. The five filaments are capillary and slender, with conjoined antheræ. The germen is obovate, crowned with a slender cylindrical style, and furnished with two revolute stigmas. The receptacle, to which the seeds are attached, is convex and dotted.

Distinctive Character.—Leontodon *palustre*, Marsh Dandelion, which is regarded by some as a distinct species, and by others merely as a variety, may be distinguished from L. *Taraxacum*, by its having the outer scales of the involucre shorter, and not reflexed; by the leaves being less runcinate, and the flower and whole plant smaller and more slender. In its sensible qualities it agrees with the preceding species; the distinction, therefore, in a medical point of view, is not very important.

The summer of 1832 was peculiarly favourable to the extra-development of plants, and many irregular growths have been observed. One of not the least curious is the evolution of bracteæ, upon the usually naked scape of the Leontodon Taraxacum. In some of the specimens examined and preserved, the bracteæ are evidently parts of the involucre not collected into the normal whorl; but in others, they have all the characters, and are nearly as large as the ordinary leaves; thus rendering the plant as it were caulescent. Should this form be permanent, it might almost be regarded as a distinct species.

The term Leontodon, is derived from λεων, a lion, and ὀδους, tooth and is so called from the indentments of the leaves, which have been fancifully compared to the jaw or teeth of a lion. Linnæus bestowed this name upon the genus, in preference to the compound one of Dens-Leonis, which had been given by Tournefort; and Taraxacum is said to be an Arabian corruption of τροξιμον, *edule*, one of the names of Ceres. From the receptacle looking bald, after the flowers and seeds are gone, it is sometimes called Monkshead; while by the French, it is termed *pissenlit*, from its diuretic properties, and it has obtained in this country a vulgar designation expressive of the same powers. The English name Dandelion appears to be a corruption of *Dent de lion*.

Linnæus has given the dandelion a deserved place in the horologe of Flora. It is one of the plants that may be most certainly depended upon as to the hour of opening and closing its flowers. The flower, if we well examine it, we shall discover to be fully as handsome as the fine garden anemone; and it only needs to be as rare, to be prized as much. This plant blossoms early in the spring, and continues through the summer.

> Thine full many a pleasing bloom
> Of blossoms lost to all perfume;
> Thine the dandelion flowers,
> Gilt with dew like sun with showers.—Clare.

The winged seeds are used for Love's oracle. If you are separated from the object of your affection, gently detach one of these transparent spheres, each little feather that composes it is charged with a tender thought. Turn towards the spot inhabited by your beloved: blow softly, and every little winged traveller, like a faithful messenger, shall bear your secret homage to her feet. If desirous of knowing whether the

object so dear thinks of you now you are absent, blow again, and if there remain one tuft, it is a sign you are not forgotten. But the second charm should be done with care; blow very gently; for at any age, even at that age which is most congenial to love, it is not well for our peace that we should too rudely disperse the pleasing illusions which embellish life.

Miss Landon wrote some very beautiful lines on seeing an illustration of the garden scene in Goethe's Faust, where Margaret plucks a star-like flower to divine the real sentiments of her lover. They are called "The Decision of the Flower."

And with scarlet poppies around, like a bower,
The maiden found her mystic flower;
"Now, gentle flower, I pray thee tell
If my lover loves me, and loves me well;
So may the fall of the morning dew
Keep the sun from fading thy tender blue.

Now I number the leaves for my lot—
He loves not—he loves me—he loves me not—
He loves me—yes, thou last leaf, yes—
I'll pluck thee not for that last sweet guess!
He loves me!" "Yes," a dear voice sighed,
And her lover stands by Margaret's side.

Professor Burnett says, "the dandelion, has sometimes, when blanched, been introduced on our tables in salad, but its bitterness is too powerful to allow it to be a pleasant food. It is hence more in repute as a medicine, and in the hepatic complaints of persons long resident in warm climates it often affords very marked relief. It is tonic, and promotes the various secretions, forming likewise an excellent food for milch cows; and, from its influence over the excretions of the kidneys, probably arose its vulgar name, which is found identical in several languages.

Qualities and Chemical Properties. The plant is nearly inodorous, and its taste is somewhat bitter, and sweetly acidulous. Although it yields but little of its virtues either to alcohol or ether, (water being the best menstruum,) it has been found on analysis to contain caoutchouc. *Infusion of galls, nitrate of silver, oxymuriate of mercury, acetate of lead, and sulphate of iron, precipitate its decoction,* and are, therefore, incompatible with it. The milky juice is supposed to contain tartaric acid, as it reddens vegetable blues; and it is probable, remarks Dr. A. T. Thomson, that the active principles of taraxacum are, extractive gluten, a bitter principle, which does not appear to be resinous, and tartaric acid, either free, or as a supertartrate.

Medical and Œconomical Uses. Dandelion is moderately aperient, and diuretic; the whole of the plant possessing these properties, which are most active in the roots. As a domestic medicine it is often administered with superstitious expectations; Park, an old English author, remarking, "whoso is macilent, drawing towards a consumption, or ready to fall into a cachexy, by the use hereof for some time together, shall find a wonderful help." Many authorities might be quoted in its favour, but like most of our indigenous medicines it is seldom prescribed. Dr. Pemberton, however, recommended it. Where the stomach is irritated by its own secretions, arising from chronic inflammation affecting some of the abdominal viscera, especially the liver; and where active treatment would be injurious, the decoction of Taraxacum, or the extract, administered three or four times a day, will often prove a valuable remedy. In habitual costiveness, the result of a long residence in hot climates, dandelion is a most efficient medicine; for instead of impairing the constitution further, by producing a purgative action that it may be difficult to control, it assists the bowels in performing their functions, and constrains them mildly and regularly to perform them: and Dr. James Johnson ranks it amongst those agents that possess the power of preventing the formation of biliary concretions, by keeping up a due and healthy secretion in the liver. As an adjuvant to other more active remedies, it may be prescribed with advantage in dropsical cases, and for induration of the liver, while by our continental neighbours, it is recommended for pulmonic tubercles, and some cutaneous diseases. When its diuretic effect is required, supertartrate of potass may be combined with its decoction or infusion. We have not discovered any narcotic powers from its administration, although they frequently reside in the lactescent plants.

It is a fact well known to gardeners, that plants when blanched, lose many of their active properties; and dandelion thus prepared, is frequently eaten on the continent in salads; and sometimes by the lower class of people in this country, in its native state; while at Gottingen, the roots are roasted and used by the poor for coffee, a decoction of which, properly prepared, can hardly be distinguished from the real. The French eat the young roots, and the etiolated leaves, with thin slices of bread and butter; and it is stated, that the inhabitants of Minorca subsisted on this root, after a swarm of locusts had destroyed the fruits of the earth. Miller remarks, that "goats eat it, swine devour it greedily, sheep and kine are not fond of it, and horses refuse it."

Dandelion, in the language of flowers, stands for Oracle.

Phœnix dactylifera

PHŒNIX DACTYLIFERA.—THE DATE PALM.

CLASS XXI. MONŒCIA.—ORDER VII. POLYANDRIA.

NATURAL ORDER, PALMÆ.———THE PALM TRIBE.

PHŒNIX, a genus of palms, which has been so named from one of its species, the date-tree, having been called so by the Greeks; this name is thought by some to be derived from Phœmicia, because dates were procured from thence. The genus is common in India and in the north of Africa, and one of the species grows in Arabia, the lower parts of Persia, and along the Euphrates to Syria. The genus is characterized by having flowers diœcious, sessile, in a branched-spadix, supported by a simple spathe; calyx urceolate, 3-toothed; coral 3 petalled; stamens 6 or 3; filaments very short, almost wanting; anthers linear; (female) calyx urceolate, 3-toothed; coral 3-petalled, with the petals convolute; pistil with three ovaries distinct from each other, of which one only ripens; stigmas hooked; drupe one-seeded; seeds marked on one side with a longitudinal furrow; albumen reticulate; embryo in the back of the seed; palms with stems of a moderate height and ridged, or marked with the seams of the fallen leaves; fronds or leaves pinnate; pinnæ or leaflets linear, with the spadix bursting among the leaves, surrounded with an almost woody two-edged sheath; flowers yellowish-white; fruit soft, edible, of a reddish yellow colour.

Phœnix dactylifera, or the date-tree, is one of the best known and probably the earliest known of the palms, and though belonging to a family which abounds and flourishes most in tropical regions, itself attains perfection only in comparatively high latitudes. It is no doubt the species to which the name Palma was originally applied, as we may infer from its being common in Syria, Arabia, the lower parts of Persia, as well as Egypt, and the north of Africa, whence it has been introduced into the south of Europe, and cultivated in a few places, not only as a curiosity, but on account of its leaves, which are sold twice in the year, in spring for Palm Sunday, and in September for the Jewish Passover; and also, from the name not being applicable to the other species known to the ancients, as it is considered that the bunches of dates were likened to the fingers of the hand, as appears from the present specific name, *dactylifera*, from the Greek *dactylus*, a finger. It is the palm-tree of Scripture, and was emblematic of Judæa, as we see in coins with the inscription of *Judæa capta*. It is found in oases in the desert, and round Palmyra, which is supposed to have been named from its presence. This appears indeed to be only a translation of the Oriental name, which is Tadmor, supposed to be a corruption of Tamar (from *tamr*, a date), a city built in the desert by Solomon. The date-tree is therefore a subject of classical as well as of scriptural interest, besides its fruit forming a large portion of the food of a great part of the Arab race, and also a considerable article of commerce.

The date-palm being diœcious, that is, the stamens and pistils being not only in different flowers, but even on different plants, the crops entirely fail, or the fruit is worthless and unfit for food, if fertilization is in any way prevented.

The extensive importance of the date-tree is, says Dr. Clarke, one of the most curious subjects to which a traveller can direct his attention. A considerable part of the inhabitants of Egypt, Arabia, and Persia subsist almost entirely on its fruit. They make a conserve of it with sugar, and even grind the hard stones in their hand-mills for their camels. In Barbary they form handsome beads for paternosters of these stones. From the leaves they make couches, baskets, bags, mats, brushes, and fly-traps; the trunk is split and used in small buildings, also for fences to gardens, and the stalks of the leaves for making cages for their poultry. The threads of the web-like integument at the bases of the leaves are twisted into ropes, which are employed in rigging small vessels. The sap is obtained by cutting off the head of the palm and scooping out a hollow in the top of the stem, where, in ascending, it lodges itself. Three or four quarts of sap may be obtained daily from a single palm, for ten days or a fortnight, after which the quantity

lessens, until, at the end of six weeks or two months, the stem is exhausted, becomes dry, and is used for firewood. This liquor is sweetish when first collected, and may be drunk as a mild beverage, but fermentation soon takes place, and a spirit is produced, which is distilled, and forms one of the kinds of aruk (arrack) or spirit of Eastern countries. Such being the importance and multiplied uses of the date-tree, it is not surprising that in an arid and barren country it should form so prominent a subject of allusion and description in the works of Arab authors, and that it should be said to have 300 names in their language. Many of these are however applied to different parts of the plant, as well as to these at different ages.—*(Penny Cyclopædia.)*

"A single date-palm" says Professor Burnett, "will bear upwards of a hundred weight, and sometimes between two and three hundred weight of dates in a season; they come into bearing at from six to ten years of age, and are fruitful for upwards of two hundred years. The amylaceous central part of the trunk is also good to eat, and the buds are esteemed a delicate vegetable. The young shoots are said to resemble asparagus."

The palm-tree, says the author of "The Vegetable World," is hailed by the wanderer in the desert with more pleasure than any other tree; for, in addition to its shade and its fruit, wherever a little clump of palms contrasts their bright green with the red wilderness around, he may almost be sure that he shall find a fountain ready to afford him its cooling and refreshing water. When Moses and the Israelites arrived at Elim, they found twelve wells of water, by the side of seventy palm-trees: and Sir Robert Wilson says, that when the English army landed in Egypt, in 1801, to expel the French from that country, Sir Sidney Smith assured the troops that, wherever date-trees grew, water must be near; and so they found it, on digging usually within such a distance that the roots of the tree could obtain moisture from the fluid.

The following lines occur in Mr. Wilson's romantic Poem, "The Isle of Palms." Two lovers have been wrecked on a desert island:

Like fire, strange flowers around them flame,
Sweet, harmless fire breathed from some magic urn,
The silky gossamer that may not burn,
Too wildly beautiful to bear a name.
And when the Ocean sends a breeze,
To wake the music sleeping in the trees,
Trees scarce they seemed to be; for many a flower,
Radiant as dew, or ruby polished bright,
Glances on every spray, that bending light
Around the stem, in variegated bows,
Appear like some awakened fountain-shower,
That with the colour of the evening glows.
And towering o'er these beauteous woods,
Gigantic rocks were ever dimly seen,
Breaking with solemn grey the tremulous green,
And frowning far in castellated pride;
While, hastening to the Ocean, hoary floods
Sent up a thin and radiant mist between,
Softening the beauty that it could not hide.
Lo! higher still the stately Palm trees rise,
Checquering the clouds with their unbending stems,
And o'er the clouds amid the dark-blue skies,
Lifting their rich unfading diadems.

How calm and placidly they rest
Upon the Heaven's indulgent breast,
As if their branches never breeze had known!
Light bathes them aye in glancing showers,
And silence mid their lofty bowers
Sits on her moveless throne.
Entranced there the lovers gaze,
Till every human fear decays,
And bliss steals slowly through their quiet souls;
Though ever lost to human kind
And all they love, they are resign'd:
While with a scarce-heard murmur rolls,
Like the waves that break along the shore,
The sound of the world they must see no more.
List! Mary is the first to speak,
Her tender voice still tenderer in her bliss;
And breathing o'er her silent husband's cheek,
As from an infant's lip, a timid kiss,
Whose touch at once all lingering sorrow calms,
Says, *God to us in love hath given*
"*A home on earth, most like to Heaven,*
"Our own sweet ISLE OF PALMS."

Ulmus campestris

ULMUS CAMPESTRIS.——COMMON SMALL-LEAVED ELM.

CLASS V. PENTANDRIA.—ORDER II. DIGYNIA.

NATURAL ORDER, ULMACEÆ.——THE ELM TRIBE.

Fig. (*a*) represents a flower with its bractea magnified; (*b*) the styles; (*c*) the capsules; (*d*) *Scolytus destructor* of the natural size.

THE common small-leaved elm is generally understood to be indigenous to the south of England, though the fact has been doubted by Evelyn and others. Several supertitious customs were practised on this and other elm-trees by our Saxon ancestors. A canon of king Edgar, in the tenth century, may be thus literally translated. "We decree that every priest shall anxiously advance Christianity, entirely abolish all heathenism, and forbid tree-worship, divination with the dead, omens, charms with songs, man-worship, and many other illusions which are practised in asylums on elms, (hence perhaps the name Witch of Wych-Elm,) and on various other trees, by which many are perverted who ought not so to be." Dr. Hunter justly remarks, there can be no stronger proof of its being known at a very early period, than that many compound names of places, of which the word "elm" forms a part, are to be met with in "Doomsday Book," the drawing up of which was finished in 1086.

The small-leaved elm grows abundantly in the woods and hedges near London, flowering in April, long before the foliage expands. It is a lofty tree, sending off many round, spreading, crooked, leafy branches, and is covered with a rugged dark-brown bark. The leaves are elliptical, contracted toward each end, doubly serrated, and unequal at the base, they are very rough, wrinkled, and veined, stand alternately on footstalks, and are of a dark green colour. The flowers are small, and grow in numerous dense, round, dark-purple clusters, from the sides of the branches before the evolution of the leaves, each flower being nearly sessile, with an oblong fringed bractea at its base. The calyx is inferior, turbinate, wrinkled, permanent, and divided at the limb into four oblong obtuse segments of a pale brownish red colour. There is no corolla. The filaments are four or five, twice as long as the calyx, and bearing dark-purple anthers. The germen is oblong, compressed, and supports two styles, which bend outwards, and are terminated by the stigmas, which consist of a downy line along the upper surface of each style. The flowers are succeeded each by an oblong, wedge-shaped flat pale brown capsule, which has a deep sinus at the extremity, and incloses a single seed.

The elm attains a large size, and lives to a great age. Mention is made of one planted by Henry IV. of France, which was standing at the Luxemburg Gardens in Paris at the commencement of the French revolution. One at the upper end of Church-lane, Chelsea, (said to have been planted by Queen Elizabeth,) was felled in 1783. It was thirteen feet in circumference at the bottom, and one hundred and ten feet high. Mr. Coxe mentions an ancient elm at Raglan Castle, in Monmouthshire, which was twenty-eight feet five inches in circumference near the root. Piffes' elm, near the Boddington Oak, in the vale of Gloucester, was, in 1783, about eighty feet high, and the smallest girth of the principal trunk was sixteen feet. From the planting of Sir Francis Bacon's elms, in Gray's Inn Walk, in 1600, and their decay about 1720, one would be disposed to assign the healthy period of the elm to be about one hundred and twenty years. The health of these must have been, however, affected in some degree by the smoke of London. The superb avenue called the "Long Walk," at Windsor, was planted at the beginning of the last century. Most of the trees have evidently passed their prime. The most profitable age of elms, both for quantity and quality of timber, is supposed to be about fifty or sixty years. The predominance of resin insoluble in water, and not liable to be acted on by the atmospheric air, has been assigned as the cause why the pine and the larch are more durable than the silver fir and the spruce. "It is possible," says Miller, "that the elm is injured by too much humidity in the soil upon which it grows; and the Dutch elm, which is usually classed as a different species from the common elm, may be merely the common one debased in the humid soil of Holland."

The elm has been always considered as one of the trees which can be most safely transplanted after attaining a considerable size. Evelyn gives several accounts of this species being thus removed into other soils. In the year 1816, a much improved mode of transplanting this and other forest trees was introduced by Sir Henry Stewart, of Allanton, for an account of which we must refer our readers to his valuable work, "the Planter's Guide."

The *culture* of the elm is effected in different ways; as by seed, suckers, layers, and grafts. All the sorts and varieties are of hardy growth, and will succeed perfectly well in any common soil and exposure, but delight most in a deep rich earth of a stiffish loamy nature, which is rather inclined to moisture, the English sorts having the best situations and soil, and the Wych and Dutch kinds those which are inferior in these respects. The common small-leaved elm is of slower growth than our other wild species, with a harder, more durable, and consequently more valuable wood, which is preferred for most kinds of wheel-work, pipes for conducting water under the ground, pumps, coffins, and various other useful purposes.

The elm-tree is liable to be injured, and is sometimes entirely destroyed by a minute beetle, (Scolytus *destructor*,) which, in its preparatory state of metamorphosis, feeds upon the soft inner bark. This insect, which inhabits the elms of France and Germany, as well as England, was particularly prevalent, and caused incalculable mischief in St. James's and Hyde Parks a few years ago. The leaves of the trees infested by the scolytus first became yellow, the trees themselves then die at the top, and ultimately altogether perish. "From March to September," says Mr. Curtis, "the female may be found upon the trunks of elm-trees, making her way through the bark; after which she proceeds between the bark and the wood; forming a passage, and depositing her eggs on each side in her course till she is exhausted, when she dies, and may generally be found at the extremity of the channel; when the eggs which are deposited being close to each other, hatch, larvæ beginning to feed, working nearly at right angles from the path of the parent, and proceeding almost parallel to each other."

In order to check the ravages occasioned by these formidable little animals, Mr. Macleay recommends the infected trees to be brushed over in March, with a mixture of tar and train oil, a certain height above ground, which will destroy the larvæ. An insect, similar in its economy, but belonging to a different genus, the Bostrichus *typographus* of Fabricius, and known in Germany under the name *Wurm trockniss*, (decay caused by worms,) occasioned terrible devastation among the pines in the Hartz forest, about the year 1783.

Qualities and Chemical Properties.—The inner bark, which is the part used in medicine, has a yellowish colour, and a mucilaginous bitter astringent taste, without smell. The bark in the spring is most advantageously stripped from the small, but not from the smallest branches; and in autumn from the branching roots. The decoction, when evaporated, leaves a little semi-transparent substance, soluble in water, but insoluble in alcohol and ether, which Dr. Thomson, in his Dispensatory, regards as *ulmin*: or rather, as a peculiar modification of mucus, combined with extractive, gallic acid, and super-tartrate of potass. *Ulmin* is the name given to a peculiar substance which was discovered by the celebrated Klaproth, in the bark of the elm. It exists in the bark of almost all trees, but is generally obtained by spontaneous exudation from the elm. It may be prepared by acting on elm-bark by hot alcohol and cold water, and then digesting the residue in water which contains an alkaline carbonate in solution. In the solid state it has the appearance of gum. It has no taste, and is soluble, though sparingly, in water and alcohol. The alkaline carbonates dissolve it more abundantly, and it is precipitated from its solution in them by acids and metallic salts. Dobereiner states, that gallic acid is converted into ulmin, by dissolving it in ammonia, and exposing the solution to oxygen gas. Ulmin has not hitherto been applied to any particular use.

Medical Properties and Uses.—The decoction of elm-bark has been recommended in various cutaneous diseases; particularly of the herpetic and leprous kind. Banau recommends its use in chronic rheumatism, scrofulous affections, tinea capitis, scurvy, and in old inveterate ulcers. In Vol. II. of the Medical Transactions, five cases of inveterate eruptions are narrated by Dr. Lysons, as having been cured by this remedy, but it is doubtful whether adjuncts are not the chief causes of relief, Dr. Lettsom also cured what he supposed to be the *lepra ichthyosis* of Sauvages by it; but it is now fallen into disuse as a remedy of very little power. Probably, however, it deserves more extensive trials before being discarded from our materia medica. The Decoction *(Decoctio Ulmi* of the pharmacopœias) is made by boiling four ounces of the inner bark in four pints of water down to two pints. *Dose* from four to six or eight ounces twice a day.

Eria bractescens.

ERIA BRACTESCENS.—LONG-BRACTED ERIA.

Class XX. GYNANDRIA.——Order I. MONANDRIA.

Natural Order, ORCHIDEÆ.—THE ORCHIS TRIBE.

Among the extensive genus Erias, we find a few species particularly distinguished by their short fleshy stems, and the membranous coloured bracts which accompany their hairless flowers. Of these the best known are the present species, *longilabris*, *obesa*, and a Philippine plant that may be called *ovata*. They are natives of the hotter parts of India, and are so much alike that an incautious observer might almost regard them as varieties. They are, however, most truly distinct, as the following definitions of them will shew.

1. E. *bractescens*.

Mr. Cuming found this at Sincapore, and Mr. Griffith in Burma, near Moulmain. It has a fleshy oblong stem, which bears at the summit two or three leaves, from one and a half to two inches broad, and gradually tapering to the base. Its flowers are in the Sincapore plant greenish white, with a lip crimson except at the end; in the Burma plant they are more straw colour than green. The lip is three-lobed, has an abruptly truncated extremity, and is marked with three elevated ridges, of which the two side ones are very short, while the middle one reaches to the end of the lip. Fig. 1. shews this structure, and fig. 2. the pollen-masses.

2. E. *longilabris* (Lindl. in Bot. Reg. 1841. misc. 69.)

This is a native of Panay in the Philippines, whence it was sent to Messrs. Loddiges by Mr. Cuming. It is very like Eria bractescens, but is a much finer species, and bears more flowers. It is distinguished at once by its lip, which is not truncate, and has three equal wavy ridges prolonged almost as far as the tip of the middle lobe, which is long and acuminated.

3. E. *obesa*. (Lindl. in Wall. Cat. no. 1976. Gen. and Sp. no. 15.)

This was originally taken up from imperfect Martaban specimens in Dr. Wallich's herbarium. It was afterwards met with at Moulmain and Merquy by Mr. Griffith; always, however, without leaves. The pseudo-bulbous stems are about twenty-seven inches long; the bracts ovate, reflexed, greenish dull purple; the flowers white with a tinge of pink, and a yellow lip; they are arranged in short spreading racemes.

4. E. *ovata*.

This plant, found in the Philippines by Mr. Cuming, evidently differs from the three others in the shape of the lip, which has no lobes, but an ovate-oblong form and a couple of little diverging plates near the base. It is nearest to E. longilabris in general appearance.

All these should be potted in turfy heath-mould, mixed with a few pieces of potsherds. Water should be liberally given during the growing season, and the atmosphere kept as humid as possible. In sunny weather the house should be slightly shaded, for although this plant succeeds well in a high temperature, it is soon injured by the rays of the sun. In winter very little water is required, and where steam cannot be admitted a slight syringe over head will be sufficient for two or three months.

"This is the month," says a popular writer, "in which we are said by the Frenchman to hang and drown ourselves. We also agree with him to call it 'the gloomy month of November;' and, above all, with our in-door, money-getting, and unimaginative habits, all the rest of the year, we contrive to make it so. Not all of us, however: and fewer and fewer, we trust, every day. It is a fact well known to the medical philosopher, that, in proportion as people do not like air and exercise, their blood becomes darker and darker: now what corrupts and thickens the circulation, and keeps the humours within the pores, darkens and clogs the mind; and we are then in a state to receive pleasure but indifferently or confusedly, and pain with tenfold painfulness. If we add to this a quantity of *unnecessary* cares and sordid mistakes, it is so much the worse. A love of nature is the refuge. He who grapples with March, and has the smiling eyes upon him of June and August, need have no fear of November.—And as the Italian proverb says, every medal has its reverse. November, with its loss of verdure, its frequent rains, the fall of the leaf, and the visible approach of winter, is undoubtedly a gloomy month to the gloomy, but to others, it brings but pensiveness, a feeling very far from destitute of pleasure; and if the healthiest and most imaginative of us may feel their spirits pulled down by reflections connected with earth, its mortalities, and its mistakes, we should

but strengthen ourselves the more to make strong and sweet music with the changeful but harmonious movements of nature."

"No period," says Dr. Drake, "of the year is better entitled to the appellation of The Season of Philosophic Enthusiasm, than the close of Autumn. There is in the aspect of every thing which surrounds us, as the sun is sinking below the horizon, on a fine evening of October (or November,) all that can hush the troubled passions to repose, yet all which at the same time, is calculated to elevate the mind, and awaken the imagination. The gently agitated and refreshing state of the atmosphere, though at intervals broken in upon the fitful and protracted moaning of the voiceful wind; the deep brown shadows which are gradually enveloping the many-coloured woods, and diffusing over the extended landscape a solemn and not unpleasing obscurity; the faint and farewell music of the latest warblers, and the waning splendor of the western sky, almost insensibly dispose the intellectual man to serious and sublime associations. It is then we people the retiring scene with more than earthly forms; it is then we love

> To listen to the hollow sighs
> Through the half-leafless wood that breathes the gale.
> For at such hours the shadowy phantom pale
> Oft seems to fleet before the Poet's eyes;
> Strange sounds are heard, and mournful melodies
> As of night-wanderers who their woes bewail.
>
> CHARLOTTE SMITH.

It is scarcely possible not to prostrate ourselves with deep humility before the throne of that Almighty being, who wields, directs, and limits the career of an element which, if let loose on this firm globe, would winnow it to dust.

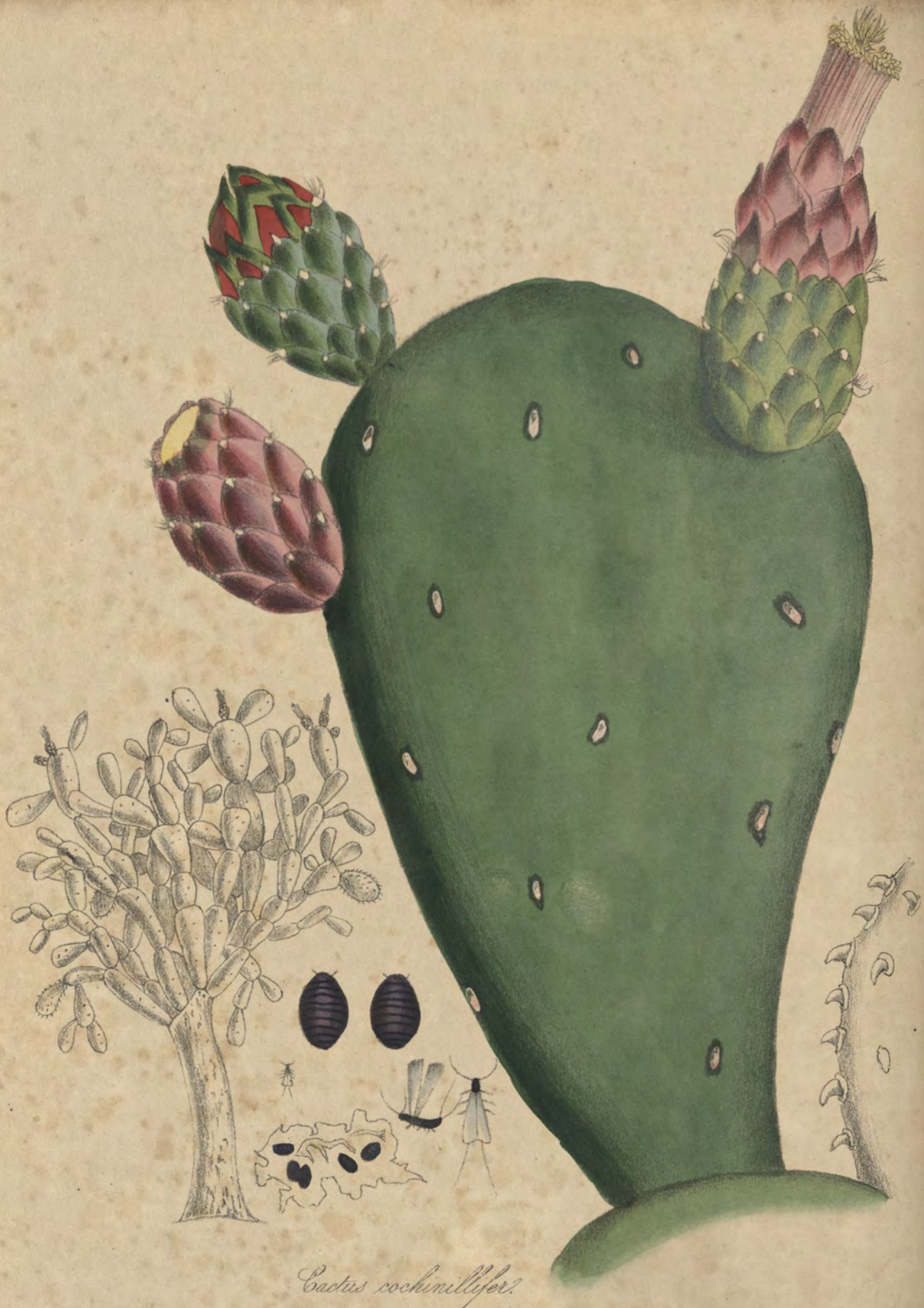
When we behold the birds that wing their way through this immeasurable void, through what vast tracts and undiscovered paths they seek their distant food; with what love and gratitude should we not reflect, that if he in mercy has become their pilot and their guide, how much more will he prove to us a sure and never failing protector.

And when we turn our eyes from earth, its falling leaves and fading aspect, its gathering gloom and treacherous meteors, to that great and glorious vault where burn the steady lamps of heaven, or where, shooting into interminable space, flow streams of inextinguishable lustre, we are almost instinctively reminded, that here our days are numbered, that on this low planet brief is the time the oldest being lives, and that, passing from this transitory state, we are destined to pursue our course in regions of ever-during light, in worlds of never-changing beauty.

It is owing to these, and similar reflections, which it has been the business of this paper to accumulate, that autumn has been ever felt as more peculiarly the Season of Religious Hope. Amid vicissitude and decay, amid apparent ruin and destruction, we behold the seeds of life and renovation; for he who pervades and dwells with all things, the unchangeable and immortal Spirit, has so ordained the course of organized nature, that not only is life the precursor of death, but the latter is essential to the renewal of existence, a chain and catenation, a cycle, as it were, of vitality, which tells us, in the strongest language of analogy, that if such seem the destiny of irrational nature, if thus she die to live again, how assured should be the hope of intellectual being.

To him who views the temporary desolation of the year with no consolatory thought—who sees not, in the seeming ruin which surrounds him, any hope of emblem of a better world, who hears not the accents of dying nature responding to the voice of revelation, and telling of a Spring beyond the grave—to him who is insensible to reliances such as these, to hopes which can whisper peace, and soothe the evils of mortality, how stale, flat, and unprofitable must appear all the uses of this feverish existence. He may be told, in the language of the poet, in the language of faith and heart-felt consolation,

> To you the beauties of the autumnal year
> Make mournful emblems, and you think of man
> Doom'd to the grave's long winter, spirit-broke,
> Bending beneath the burden of his years,
> Sense-dull'd and fretful, full of aches and pains,
> Yet clinging still to life. To me they show
> The calm decay of nature, when the mind,
> Retains its strength, and in the languid eye
> Religion's holy hopes kindle a joy
> That makes old age look lovely. All to you
> Is dark and cheerless; you in this fair world
> See some destroying principle abroad,
> Air, earth, and water full of living things
> Each on the other preying; and the ways
> Of man, a strange perplexing labyrinth,
> Where crimes and miseries, each producing each,
> Render life loathsome, and destroy the hope
> That should in death bring comfort. Oh, my friend,
> That thy faith were as mine! that thou could'st see
> Death still producing life, and evil still
> Working its own destruction; could'st behold
> The strifes and tumults of this troubled world
> With the strong eye that sees the promised day
> Dawn thro' this night of tempest! all things then
> Would minister to joy; then should thine heart
> Be healed and harmonised, and thou should'st feel
> God, always, every where, and all in all.
>
> SOUTHEY.



Cactus cochinillifer.

CACTUS COCHINILLIFER.——SPINELESS COCHINEAL FIG.

CLASS XII. ICOSANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, CACTEÆ.——THE INDIAN FIG TRIBE.

THIS Cactus may almost be reckoned arborescent, for it grows to the height of nine feet. The lower and older parts of the *stem* and branches are cylindrical or but slightly compressed, of a greyish ash colour, and woolly; the younger branches are every where proliferously jointed, their joints varying in size from four to six inches, to a foot in length, oblong or obovate, more or less attenuated at the base, all of them much compressed, flattened, of a deep full green colour, when young having several scattered fleshy, curved, subulate *leaves* scarcely half an inch long, which soon fall off, leaving a white scar. There are no spines. The flowers, which are three inches or more long, appear in the joints, at the extremities of the branches, and generally at or near their superior margins. The base is occupied by the large, fleshly, obovate, truncated, reticulated, dark green *germen*, whose areolæ constitute an oblong swelling or tubercle, tipped at the apex by a white scar, whence small leaf-like processes have fallen, and above which is a small fascicle of fine hairs or bristles. This has one cell filled with ovules, attached to a curved seed-stalk. *Calyx* of many ovate or obovate, very acute, erect, greenish red scales, gradually passing into the broader and larger, obtuse, very closely imbricated, connivent bright rose coloured *petals*. *Stamens* much protruded, very numerous, rose coloured, their base sunk into the top of the *germen*, forming a cylindrical mass, united below. *Filaments* very slender. *Anthers* oblong, pale yellow. *Style* dilated near the base, but again suddenly contracted at the very base, tapering upwards to the length of the stamens, and terminated by a cup-shaped *stigma*, cut into from five to eight yellow green rays. After the falling away of the *Calyx*, *Corolla*, *Stamen*, and *Pistil*, a considerable hollow remains on the top of the germen, and this latter, scarcely increasing in size, or altering in form, becomes a *berry* of a fine red colour within and without, having, in the centre, a number of nearly reniform, compressed *seeds*, enveloped in pulp.

There are few tribes of plants that require illustration, by the aid of the pencil, more than the Cactuses; they cannot be preserved in the Herbarium, nor so easily described in words, as many other plants. An idea, too, has been very generally current, that they are liable to much variation; but from what we have ourselves seen of them in a state of cultivation, we think ourselves warranted in considering them to be tolerably constant to their character.

With regard, too, to that particular species of Cactus, which nourishes the Cochineal Insect, much doubt has existed; and we believe it must be allowed, that our plant, which was named by Linnæus, and has been almost universally called C. *cochinillifer*, is not that which produces the best Mexican Cochineal; nor are we prepared to say, of what part of South America it is a native. Linnæus speaks of it as indigenous to Jamaica, and the warmer parts of the new world; but Stone, who gives a very tolerable figure of it, says, that the plants he saw, in Mr. Worley's plantation, were brought from the main Continent of America, by a Spanish priest, and affirmed to be the species on which grew the Cochineal.

We know our present subject to be the true C. *cochinillifer* of LINNÆUS, by his references to various figures, especially to that of DILLENIUS, in the Hortus Elthamensis above quoted; and that author considers it may be the same as the *Nocheznopalli* or *Nopelnochetzli*, figured in Hernandez; except that, in the latter plant, the flowers are spreading, whilst in ours the petals are connivent. He does not say where it is indigenous. In the Chelsea garden according to RAY, it was cultivated prior to 1688, and was received from Barbadoes.

ULLOA, not upon his own authority, as it appears, but on that of well informed travellers, states, that the *Cochineal Cactus* has no spines, and a fruit imbued with a deep-red pulp. This is partly contradicted by CLAVIGERO, who says, "In Misteca, where I was for five years, I always saw the insect upon prickly Nopals. M. de Raynal imagines, that the colour of the Cochineal is to be ascribed to the red fig on which it lives; but that author has been misinformed, for neither does the Cochineal feed upon the fruit, but only upon the leaf, which is perfectly green; nor does that species of NOPAL bear *red*, but *white* figs." It is true, CLAVIGERO adds, "it may be reared upon the species with a red fig; but that is not the proper plant of the Cochineal."

DE CANDOLLE, in his beautiful work entitled "Plantes Grasses," has given, as the CACTUS *Cochinillifer*, the C. Tuna of Linnæus, a plant totally distinct from the LINNÆAN *cochinillifer*, and whose flower is of a different structure.

THIERRY de Menonville, who so courageously procured[a] the Cochineal Insect and the Cactus from

[a] This circumstance is thus related by Dr. Bancroft, in his valuable "Researches on the Philosophy of Permanent Colours." In the month of January, 1777, M. THIERRY de MENONVILLE left PORT au Prince, in St. Domingo, for the purpose of procuring some of the living Cochineal Insects in MEXICO, and bringing them away to be afterwards propagated in the French West India Islands; an enterprise, for the expence of which, four thousand livres had been allotted by the French Government. He proceeded by the Havannah, to la Vera Cruz and was there informed, that the finest Cochineal Insects were produced at GUAXACA, distant about seventy leagues. Pretending ill health

Guaxaca, and transported them to St. Domingo, and who unquestionably had the best means of determining the kinds of CACTI, cultivated for the insect, describes particularly *three* sorts, on which it may be reared and cultivated to advantage.

1. The CACTIER *Nopal;* upon which *alone* the Cochineal is reared in Mexico, both the fine and the common Cochineal (la Cochenille *fine* et *sylvestre*) although there are throughout the country many other kinds of CACTUS. The two following, therefore, it is presumed, are employed in St. Domingo.

2. The CACTIER *Splendide;* which may be used to equal advantage with the former; and

3. The CACTIER *de Campêche.*

Of these, the first as far as can be determined by description, for the writer had never seen the flower or fruit, is the CACTUS *Tuna* of Linnæus; C. *cochinillifer* of De Candolle.

The second appears from the account to be very similar to the former, but larger in its joints (some of them thirty inches long,) and very glaucous.

The third, the C. de Campêche, is, I think without a doubt, our C. *cochinillifer*, for his whole description, and especially the flowers and fruit, entirely correspond, and he says of it, from his own experience, that it may be usefully employed for rearing the Cochenille *sylvestre*, and may even support a small quantity of the fine kind.

The celebrated *Humboldt* also, although he allows that it is the plant upon which the Cochineal has often been sent to Europe, asserts, that our CACTUS *cochinillifer* is not the individual of the Mexican Nopaleries, which he makes a new species, under the name of C. *Bonplandii;* and he quotes under it, with a mark of doubt, the CACTUS TUNA of Linnæus. At Rio Janeiro, when that place was visited by the CHINESE Embassy, under LORD MACARTNEY, there were considerable plantations of CACTUS, for rearing the Cochineal, which had some time previously been introduced into Brazil; and the plant, which is the CACTUS *Tuna*, is represented on the twelfth plate of the atlas of that work.

I shall further, upon the subject of the kinds of CACTUS employed in rearing the Cochineal, only add that my excellent friend, the Rev. L. GUILDING, who sent me most splendid drawings of this particular CACTUS, wrote to me two years ago from St. Vincent, "I possess a considerable nursery of this CACTUS inhabited by thousands of the true *Coccus Cacti;* and I do not despair of being able to send to the Society of Arts a large quantity of dried insects, before the termination of the present year." In the East Indies also, the insect has been extensively propagated; but we have not the means of knowing whether successfully or otherwise. From all this, we think it may be inferred, that, in Mexico and Brazil, the Cactus Tuna is the favorite food of the Cochineal, and that in the West Indian Islands, where the C. Tuna is, perhaps, less frequent; the C. *cochinillifer* is employed by the natives, and answers the purpose sufficiently well.

Like all its congeners, C. *cochinillifer* increases readily by having the joints stuck into the ground; and the plant loves dry and barren spots. If cultivated for the purpose of rearing the *Cactus*, it must be defended, at least in the rainy island of St. Vincent, from storms and winds, by sheds placed windward. It there blossoms all the year. The Cochineal insect, which feeds upon the kinds of *Cactus* just mentioned, is too well known to need a particular description here; as are also its valuable properties in producing the dye, which bears its name and carmine. It is the *Coccus Cacti* of Linnæus, a small insect of the order *Hymenoptera*, having a general appearance not very dissimilar to that of the Mealbug of our gardens, and equally covered with a white powdery substance. The male is winged. It is originally a native of MEXICO, and was cultivated for its precious dye, long before the conquest of that country; and these plantations, called *Nopaleros*, are most extensive in the MISTECA and OAXACA; the latter district alone has exported, according to HUMBOLDT upon the average 32,000 arobas annually, estimated at 2,400,000 piastres, above £500,000 sterling. The proprietor of a *Nopalery* buys in April or May, the branches or joints of the *Tunas de castilla* (Cactus Tuna;) which are sold in the markets of Oaxaca, at about three francs a hundred, loaded with young Cochineals.—*Botanical Magazine.*

Mr. Field in his instructive work entitled *Chromatography*, in speaking of carmines, "says that the brightest and most beautiful colours are prepared from cochineal, of a fine powdery texture and velvety richness. They vary from a rose colour to a warm red; work admirably; and are in other respects, except the most essential—the want of durability—excellent pigments in water and oil:—they have not, however, any permanence in tint with white lead, and in glazing are soon discoloured and destroyed by the action of light, but are little affected by impure air."

he obtained permission to use the baths of the river Magdalena; but instead of going thither, he proceeded, through various difficulties and dangers, as fast as possible to Guaxaca; where, after making his observations, and obtaining the requisite information, he affected to believe that the Cochineal Insects were highly useful in compounding an ointment for his pretended disorder, (the gout,) and therefore purchased a quantity of Nopals, covered with these insects of the fine or domestic breed, aud putting them in boxes with other plants, for their better concealment, he found means to get them away as Botanic trifles, unworthy of notice, notwithstanding the prohibitions by which the Spanish Government had endeavoured to hinder their exportation, and being afterwards driven by a violent storm into the bay of Campeachy, he there found and added to his collection a living Cactus, of a speeies which was capable of nourishing the fine domesticated Cochineal, after which, departing for St. Domingo, he arrived safe with his acquisitions, on the twenty-fifth of September, in the same, at Port au Prince. Though almost unaided, M. THIERRY de MENONVILLE then persevered in cultivating, not only the *fine* Cochineal (which he brought from Mexico,) but also the *Sylvestre*, which he afterwards found wild in St. Domingo, and so successfully, that in 1789, there were more than four thousand plants in a single Nopalery, the produce having been ascertained by chemists to be equal in quality to that of Mexico. The political troubles in St. Domingo consequent upon the French Revolution, caused the total destruction of these plantations.

Ficus carica.

FICUS CARICA.—COMMON FIG TREE.

CLASS XXIII. POLYGAMIA.—ORDER III. TRIŒCIA.

NATURAL ORDER, ARTOCARPEÆ.—THE BREAD FRUIT TRIBE.

FIG. (*a*) Exhibits a section of the unripe fruit. (*b*) Two views of the female florets. (*c*) The male florets.

THE Fig-tree is considered as a native of Asia; but has been cultivated in the south of Europe from the most remote antiquity. "It was probably," says a late writer, "known to the people of the East before the Cerealia; and stood in the same relation to men living in the primitive condition of society, as the banana does to the Indian tribes of South America, at the present day. With little trouble or cultivation it supplied their necessities; and offered, not an article of occasional luxury, but of constant food, whether in a fresh or a dried state. As we proceed to a more advanced period of the history of the species, we still find the fig an object of general attention. The want of blossom on the fig-tree was considered as one of the most grievous calamities by the Jews."—MEDICAL BOTANY.

In the fructification of the fig there is something very singular. It has no visible flowers; for the fruit arises immediately from the joints of the tree, in the form of little buds, with a perforation or aperture at the end, but not showing anything like petals. As the fig enlarges, the flower comes to maturity in its concealment, and in eastern countries, the fruit is improved by a singular operation. It is performed by suspending with threads, above the cultivated figs, branches of the wild fig, which are full of insects called cynips. When one of these has become winged it quits its house, and penetrates the cultivated figs for the purpose of laying its eggs; and thus it ensures the fructification by dispersing the pollen, and afterwards hastens the ripening by puncturing the pulp, and causing a dispersion or circulation of the nutritious juices. In France, straws dipped in olive oil are inserted to produce the same effect. Another fact is very remarkable. The fig-tree yields fruit through a considerable portion of the year. The first ripe figs are called boccôre and reach maturity about the latter end of June, though, as in other trees, a few ripe ones are produced before the full season. These few are probably of an inferior value, according to the language of the Prophet Hosea: "I found Israel like grapes in the wilderness; I found your fathers as the first ripe fruit in the fig-tree at her first time." When the boccôre approaches perfection, the karmouse, or summer fig, begins to be found. This is the crop that is dried. And, when the karmouse ripens, in Syria and Barbary, there appears a third crop, which often hangs and matures upon the tree after the leaves are shed.

In no country is it found in elevated situations, or at a distance from the sea. Hence its abundance in the islands of the Archipelago, and on the shores of the adjoining continents. It has been cultivated from time immemorial, and indeed, the fig was said to have been the first fruit eaten by man. In the Bible we read frequently of the fig tree, both in the Old and New Testament. Among the Greeks, we find, by the laws of Lycurgus, that figs formed a part of the ordinary food of the Spartans. The Athenians were so choice of their figs, that they did not allow them to be exported; and the informers against those who broke this law, being called sukophantai, from two Greek words, signifying the discoverers of figs, gave rise to our modern word sycophant. The fig-tree under which Romulus and Remus were suckled, and the basket of figs in which the asp was conveyed to Cleopatra, are examples familiar to every one of the frequency of the allusions to this tree in ancient history. At Rome, the fig was carried next to the vine in the processions of Bacchus, who was supposed to have derived his corpulency and vigour from this fruit, and not from the grape. Pliny, also, recommends figs as being nutritive and restorative; and it appears from him, and other ancient writers, that they were given to professed champions and wrestlers to refresh and strengthen them.

The first fig-trees planted in England are said to have been brought from Italy in 1525, in the reign of Henry VIII. by Cardinal Pole, and placed by him against the walls of the archiepiscopal palace at Lambeth. At Mitcham, in the garden of the Manor House, formerly the private estate of Archbishop Cranmer, there was in Miller's time, the remains of a white fig-tree confidently asserted to have been planted by Cranmer himself; but it was destroyed in 1790. Its stem, some years before, was ten inches in diameter; but its branches were very low and weak. The fig-tree, though introduced so early, appears for a long time not to have been extensively cultivated in England. Professor Burnett thinks this was owing to a popular pre-

judice, the fig having been once a vehicle for poison: a singular contrast to the ideas expressed in the Bible respecting this fruit; the best blessing of heaven being typified by every man sitting under hisown fig-tree.

In Britain, the fig is in general cultivation in first-rate gardens, usually against walls; but in some parts of the southern counties, as along the coast of Sussex, and in Devonshire, &c., as standards. In Scotland, it is never seen as a standard; but it ripens its fruit against a south wall, without the aid of fire heat, in some parts of East Lothian and in Wigtonshire, and against a flued wall, even in the neighbourhood of Glasgow. The largest fig-tree against a wall, which we have seen in England is at Farnham Castle, where, in twenty-five years, it has reached the height of forty feet against the walls of the castle.

Figs form an important article of Levantine commerce, and between 800 and 1000 tons are annually imported into Great Britain alone, principally from Turkey. Smyrna is a great fig mart; and Madden in his travels, gives the following lively and amusing account of the interest they there excite.

"In Smyrna the subject of figs is ever the fruitful theme of conversation; you ask about the gardens of Bournabul, and you hear that figs abound there; you inquire about the curiosities of that place, and they lead you to the fig mart; nay, solicit information on politics, and you are told that figs are low; and when you seek for farther intelligence, you are told that figs are flat. In short go where you will, the eternal cry is figs! figs! figs! and the very name, I apprehend, will be found written on their hearts at their decease."

The fruit is esteemed demulcent and laxative, and it has been long used in domestic medicine as a poultice. King Hezekiah's boil was cured by a poultice made with a lump of figs according to the directions of Isaiah, which, Professor Burnett observes, is the first poultice we read of in history. In the Canaries, in Portugal, and in the Greek Archipelago, a kind of Brandy is distilled from fermented figs. The leaves and bark of the fig-tree abound in a milky acrid juice, which may be used as rennet, for raising blisters, and for destroying warts. This milky juice containing caoutchouc, Indian-rubber might consequently be made from the common fig in England, if it were thought desirable, and, on account of the same property, the very tenderest of the young leaves might be given to the larva of the silkmoth.

Nearly a thousand tons of figs are annually imported into Great Britain alone, so that although fresh figs are not much prized among us, the consumption of dried ones proves them to be greatly esteemed. The fruit in its dried state forms a chief part of the support of the inhabitants of Spain, Italy, and Provence, as it does likewise of the inhabitants of the East. In the countries just named it is also a considerable article of commerce. There are many fig gardens in the northern part of France, and there is no doubt but that the tree might be extensively cultivated in this country, in warm situations, were it desirable to do so. But it is evidently not a favorite fruit amongst us; its flavour is deemed insipid, and few persons can eat it with full relish. In many of our old poets, mention is made of the fig of "Spain," and a commentator on Shakespeare imagines that allusion was made to the custom of giving poisoned figs to those who were objects of Spanish or Italian revenge. And as in Shakespeare we meet with contemptuous expressions, such as "Figs for thy friendship," so in vulgar language it is common to say of insignificant things, that we care not a fig for them. These expressions may partly arise from the little worth attached to the fig in this country.

Fresh figs, when ripe, are soft and succulent, and, eaten with moderation, are a digestible, wholesome, and very delicious fruit. If too many be partaken of, they occasion flatulency, and sometimes diarhœa, attended with pain. The dried fruit is too well known, both in appearance and taste, to render it necessary that we should say more than that figs consist almost entirely of mucilage and sugar.

Figs are used medicinally in what are termed pectoral or demulcent decoctions, which are used as common drinks. Two ounces boiled in half a pint of water, and strained, form a useful gargle for inflammatory sore throat, when suppuration takes place. They are also occasionally eaten to remove habitual costiveness. Roasted and split, they are still employed hot, as applications to gum-boils, and other circumscribed maturating tumours.

Officinal Preparations. The fig enters into two preparations of the London Pharmacopœia; namely, the *Confectio Sennæ* (or, Lenitive Electuary) and the Compound Decoction of Barley Water. The latter is formed by boiling barley-water with figs, liquorice root, and raisins. Dr. Kitchiner gives the receipt for compound as well as for plain barley-water, and says, "these drinks are intended to assuage thirst in ardent fevers, and inflammatory disorders, for which plenty of mild diluting liquor is one of the principal remedies;" and of the compound decoction he says that it "will be received with pleasure by the most delicate palate." (The Cook's Oracle, 5th edit. p. 403.) The *espèces dites fruits béchiques*,[a] or, *fruits pectoraux*, of the French Codex, are composed of equal quantities of figs, stoned dates, jujubes and raisins.

A *tisane* is directed to be made with two ounces of these pectoral fruits, and such a quantity of water that a quart may remain after an hour's boiling; the decoction is then to be strained, and sweetened at pleasure.

[a] *Béchique* means "good for a Cough." The root is the Greek word βήξ, a cough.

Ficus religiosa.

FICUS RELIGIOSA.—THE INDIAN FIG TREE.

CLASS XXIII. POLYGAMIA.—ORDER III. TRICŒCIA.

NATURAL ORDER, ARTOCARPE.E.——THE BREAD-FRUIT TRIBE.

FICUS INDICA, the Banyan Tree, is a native of most parts of India, both on the islands and the main land. Roxburgh states, that it is found in its greatest perfection and beauty about the villages on the skirts of the Circar mountains. The leaves are ovate, heart-shaped, three-ribbed, and entire; when young, downy on both sides; when old, much smoother; they are from five to six inches long, and from three to four broad; at the top of the leafstalk, on the underside, is a broad, smooth, greasy-looking gland. The figs when ripe grow in pairs from the axils of the leaves, are downy, and about the size and colour of a middle-sized red cherry. The wood is light, white, porous, and of no value. Brahmins use the leaves as plates to eat off; birdlime is manufactured from the tenacious milky juice. If the seeds drop in the axils of the leaves of the Palmyra Tree *(Borassus flabelliformis)*, the roots grow downwards, embracing the trunk in their descent; by degrees they envelop every part except the top, whence in very old specimens the leaves and head of the Palmyra are seen emerging from the trunk of the Banyan Tree, as if they grew from it. The Hindoos regard such cases with reverence, and call them a holy marriage instituted by Providence. The Banyan Tree, covering with its trunks a sufficient space to shelter a regiment of cavalry, and used as a natural canopy for great public meetings, has been so often described by writers on India as to have become familiar to the reader. The branches spread to a great extent, dropping their roots here and there, which as soon as they reach the ground, rapidly increase in size, till they become as large as and similar to the parent trunk, by which means the quantity of ground they cover is almost incredible. Roxburgh says that he has seen such trees full five hundred yards round the circumference of the branches, and a hundred feet high, the principal trunk being more than twenty-five feet to the branches, and eight or nine feet in diameter. An excellent account of such a tree will be found in the Oriental Annual for 1834; and a graphic description of the mode of growth in Rumf's 'Herbarium Amboinense,' vol. iii. p. 126. See also 'Asiatic Researches,' vol. iv. p. 310. It is called Vuta in Sanscrit, Bur or But in Bengâlî, Bagha in Cingalese. *(Penny Cyclopædia.)*

The banian or pagod tree of the Hindoos, says Professor Burnett, is the *F. religiosa*, so called from its dedication to superstitious observances, and the reverence in which it is held. It is indeed a most wonderful and venerable tree, not only rising to a majestic height, and spreading its huge arms through a vast expanse, but at intervals sending down roots from its branches which, entering the ground, corroborate the parent trunk, and convey unlimited supplies of nourishment from the soil. Fifty, sixty, or even an hundred of these adventitious stems, are not uncommon to a single tree: one at Revel-gong, a friend lately returned from India tells me, covers more than half an acre, and others are known still larger; for the celebrated banian of Cubbeer-bur, when measured by Mr. Forbes, was 2000 feet in circumference, tracing only round the principal stems. The overhanging ones, not then struck down, covered (says Mr. Forbes) a much larger space. The chief trunks of this single tree, greatly exceeding in size our common oaks and elms, were 350 in number, and the smaller stems amounted to more than 3000, every one of which was casting out new branches and hanging roots, to form further trunks, and become the parents of a future progeny. Cubbeer-bur was for ages famed throughout Hindustan for its great extent and beauty; and it is said that 7000 persons have found ample room to repose beneath its shade. Another Banian is mentioned by an old writer, which is said to have covered five acres of ground. Strabo, Pliny, and other ancient authors, have attempted in their works minute and accurate accounts of this tree; but Milton has perhaps given a more graphic description in fewer words than any other writer:

> "The fig-tree; not that kind for fruit renowned;
> But such as at this day to Indians known
> In Malabar or Deccan, spreads her arms,
> Branching so broad and long, that in the ground
> The bending twigs take root, and daughters grow
> About the mother tree, a pillared shade
> High overarched, with echoing walks between."

When speaking of the tree measured by Mr. Forbes, the author of "The Vegetable World" says, "according to the Hindoo superstition, the origin of the tree is ascribed to a saint, who, ages since, invoked a blessing from Brahma on a small sprig of a banian-tree, which he stuck into the ground on this spot, and

prayed that it might overshadow multitudes. It is, probably, some thousand years old, and the Hindoos regard it with great veneration. On sacred festivals they repair beneath its shade to worship their respective deities, and perform their ablutions in the surrounding stream. This magnificent pavilion was filled with a variety of feathered songsters, peacocks, and other birds; and crowded with whole families of monkeys, whose antics were very diverting; showing their parental affection by teaching the young ones to procure their food, and exert themselves with agility in jumping from bough to bough, and then taking more extensive leaps, from tree to tree, encouraging them by caresses when timorous and menacing them when refractory."

Gerarde, to whose description Milton appears to be indebted, calls it the Arched Indian Fig Tree, and says, "This rare and admirable tree is very great, straight, and covered with a yellow barke, tending to tawny: the boughes are many, very long, tough, and flexible, growing very long in short space, as doe the twigs of Oziars, and those so long and weake that the ends thereof hang downe and touch the ground, where they take root and grow in such sort, that those twigs become great trees: and these being growne up vnto the like greatnesse, doe cast their branches or twiggy tendrils vnto the earth, where they likewise take hold and root; by means whereof it cometh to passe, that of one tree is made a great wood or desart of trees, which the Indians doe vse for couerture against the extreme heat of the sun, wherewith they are grieuously vexed: some likewise vse them for pleasure, cutting downe by a direct line a long walke, or as it were a vault, through the thickest part, from which also they cut certaine loope-holes or windowes in some places, to the end to receiue thereby the fresh coole aire that entreth thereat, as also for light, that they may see their cattell that feed thereby, to auoid any danger that might happen unto them either by the enemy or wilde beasts; from which vault or close walke doth rebound such an admirable eccho or answering voice, if one of them speake vnto another aloud, that it doth resound or answer againe fovre or fiue times, according to the height of the voice, to which it doth answer, and that so plainly, that it cannot be known from the voice itselfe: the firste or mother of this wood or desart of trees, is hard to bee knowne from the children, but by the greatnesse of the body, which three men can scarcely fathom about: vpon the branches whereof grow leaues hard and wrinkled in shape, like those of the Quince tree, greene aboue, and of a whitish hoary colour vnderneath, whereupon the Elephants delight to feed: among which leaues come forth the fruit, of the bignesse of a man's thumbe, in shape like a small fig, but of a sanguine or bloudy colour, and of a sweet taste, but not so pleasante as the figs of Spaine; notwithstanding, they are goode to be eaten, and withall very wholesome."

The following passages are from the Flora Domestica:—

Ovid was, as might be expected, a lover of gardens, and by a passage in one of his poems appears to have been fond of writing in them. It is in his Tristia, where he is regretting, during his voyage to the place of his exile, the delight he used to feel in composing his verses under the genial sky, and among the domestic comforts of his native country:

"Non hæc in nostris, ut quondam, scribimus hortis, Nec, consuete, meum, lectule, corpus habes: Jactor in indomito brumali luce profundo, Ipsaque cæruleis charta feritur aquis. Improba pugnat hiems, indignaturque, quòd ausim Scribere, se rigidas incutiente minas." Lib. i. Eleg. 11.	"Not in my garden, as of old I write, With thee, dear couch, to finish the delight: I toss upon a ghastly wintery sea, While the blue sprinkles dash my poetry. Fell winter's at his war; and storms the more To see me dare to write for all his threatning roar."

It was, perhaps, the general power of sympathy upon the subject of plants, which caused them to be connected with some of the earliest events that history records. The mythologies of all nations are full of them; and in all times they have been associated with the soldiery, the government, and the arts. Thus the patriot was crowned with oak; the hero and the poet with bay; and beauty with the myrtle. Peace had her olive; Bacchus his ivy; and whole groves of oak-trees were thought to send out oracular voices in the winds. One of the most pleasing parts of state-splendour has been associated with flowers, as Shakspeare seems to have had in his mind when he wrote that beautiful line respecting the accomplished prince, Hamlet:

"The expectancy and rose of the fair state."

We do not find the banian tree mentioned by the expounders of emblems; but we think it might well stand as the type of *Colonization*.

Linum usitatissimum.

LINUM USITATISSIMUM.—COMMON FLAX.

Class V. PENTANDRIA.—Order V. PENTAGYNIA.

Natural Order LINEÆ.——THE FLAX TRIBE.

Of the genus Linum, nearly fifty species have been described by botanical writers. The genus is divided into two sections, the first having opposite, the second, alternate leaves. To the first section belongs the Linum *usitatissimum*, the subject of this article. It is an annual plant, growing occasionally in corn-fields and in sandy pastures; flowering in July, and ripening its seeds in September.

Common flax has a small, fibrous root; a round, slender, smooth, leafy, and branched stem, which rises to the height of two feet. The leaves are scattered, small, lanceolate, entire, sessile, 3-nerved, alternate, and, on the upper part of the stem, of a glaucous, or sea-green colour. The flowers are numerous, collected in a corymbose panicle, erect, and supported on longish footstalks. The calyx is composed of fine lanceolate, erect, permanent, 3-ribbed sepals, imbricate in æstivation. The corolla is funnel-shaped, and consists of five-notched, sky-blue, shining, veiny, oblong petals, which are narrow below, and gradually grow broader upwards, the æstivation being contorted. The filaments are five, awl-shaped, erect, the length of the calyx, and inserted into an annular receptacle, with 2-celled sagittate anthers. The germen is superior, ovate, and surmounted by five blue, capillary, spreading, undivided, bluntish stigmas, the length of the stamens. The fruit is a globular capsule, about the size of a pea, with ten cells and ten valves united in pairs, and crowned with a sharp spine. In each cell is lodged a single elliptical, pointed, smooth, and shining seed.

The generic name, Linum, (λινον,) is retained from the ancient Greek authors; its etymology is obscure.

Flax from whose fibres we procure the comfort of linen, and the beauty of lace; also yields paper for our letters and books, and from the same material sails were first made for our vessels.

Some have supposed that linen-cloth was made previous to the deluge, because we read that Noah slept in a tent; but Egypt, which is called the land of Ham, soon became the garden of the East, and the seat of arts. Isis, the wife of his son Misraim, is said to have taught the art of agriculture, and employed herself diligently in cultivating the earth, for which she was deified, and the worship of Isis became universal in Egypt. Her priests were clothed in *linen* garments. The eastern kings and princes were also attired in linen; flax, therefore, formed a considerable branch of the trade of Egypt; and the method of making fine linen was carried to such perfection that the threads which were drawn out of it were almost imperceptible to the keenest eye. Pliny states, that some of the thread made from flax was finer, and more even, if possible, than the web of a spider, and yet so strong that it would give a sound nearly as loud as a lute-string. He says, too, that he had seen an Egyptian net made of so minute a thread that notwithstanding every cord in the mesh was made of a hundred and fifty threads twisted, yet it could be drawn through the ring of a finger; but that the most extraordinary net-work was that shewn in the temple of Minerva, in the isle of Rhodes, every thread of which was twisted three hundred and sixty-five times double, according to the days in a year. This curious piece of workmanship had formerly belonged to Amasis, who, from a common soldier, became King of Egypt, about five centuries before the Christian era. The Greeks made a linen of so fine a fabric, from the flax which they cultivated at Belvedere, that it sold by weight at the price of gold.

Flax was used at a very early period for the stupendous temples of the heathens, and for the courts of their palaces, which were open buildings, surrounded with massive columns; and, as the art of weaving became known, these gorgeous edifices were occasionally hung with rich curtains of linen cloth to shade or protect the guests from the sun or weather. At the conclusion of the grand festival given by Ahasuerus, as described in the book of Esther, he feasted all the people that were in Shushan, in the court of the garden of the king's palace, where were white, green, and blue hangings, fastened with cords of fine linen and purple to silver rings, and pillars of marble. Julius Cæsar caused the Forum, at Rome, to be covered with fine curtains, as also the whole of the principal street, called Sacra, from his own dwelling to the cliff of the

capitol; and Nero ordered the amphitheatre to be adorned with curtains of a sky-blue, spangled with stars. Spain was celebrated for her manufacture of linen as early as the birth of Christ; and, subsequently, it was made in France, Holland, and Germany. The people of the last-mentioned country carried on the spinning and weaving of linen in vaults and caves under ground. The fine muslins of India were also made by persons thus entombed, who were never allowed to see the light. Even children were imprisoned from their infancy in these dark abodes, in order to produce a finer thread than it was thought could be drawn by the eye which was blessed with the light of day.

The art of weaving then practised is happily lost; and none can wish its revival. The first person who wore a linen shirt was the Emperor Alexander Severus, who was murdered A. D. 235; but the general use of such a garment did not take place till long after that period. The making of linen cloth was probably introduced by the Romans, who certainly cultivated flax in this country. Before Britain had attained its present eminence, each town or village had its weaver; the daughters of farmers were early instructed in this art; their female domestics filled up all their vacant hours at the distaff or wheel; and every good mother was expected to supply her family with linen of her own spinning. A friend of mine, in a recent visit to Scotland, saw a singular specimen of ingenuity—a man's shirt wrought in a loom, about a hundred years ago, by a weaver in Dunfermline, named Inglis; it has no seam; and every thing was completed without aid from the needle, excepting a button for the neck.

At Cambray, a city of France, the beautiful linen called cambric was first manufactured; and, for many years, England spent in its purchase not less than £200,000 per annum. From this vegetable, too, the lace of Brussels, Valenciennes, Lisle, Mechlin, Normandy, &c., has been obtained.

Qualities and Chemical Properties.—The cuticle of the seeds of flax, commonly called *linseed*, yields a mucilage to boiling water, which is inodorous, and has but little taste. By *expression*, a bland, inodorous, sweetish oil is obtained from the nucleus of the seed, the specific gravity of which is 939. It is much more soluble in alcohol than olive-oil; and as it is one of the *drying oils*,[a] it loses its unctuosity after proper preparation, and is used for varnishes, and printer's ink. It is not congealed excepting by a cold below 0° of Fahrenheit, and boils at 600° of the same scale. Although the pharmacopœia orders this oil to be obtained by simple expression, heat is generally employed, which renders it disagreeable both in taste and smell; it is therefore seldom employed as an internal remedy. Linseed contains about one-fifth of mucilage, and one-sixth of oil. The cake remaining after the expression of the latter, is used for fattening cattle, by the name of oil cake.

Medical Properties and Uses.—Woodville asserts that linseed affords but little nourishment, and that when taken as food it is found to injure the stomach. These circumstances were noticed by Galen, Ray also adverts to them; and Professor Fritze, in his Medical Annals, states, that vegetable mucilage, when used as a principal article of diet, relaxes the organs of digestion, and produces a viscid, slimy mucus, and a morbid acid in the primæ viæ—effects which may be obviated, as Dr. Paris has well shown,[b] by the addition of bitter extractive.

As we have already stated, the oil is little used as a demulcent; but when it can be obtained good, it may be given with advantage in doses of a table-spoonful as a corrector of habitual costiveness; and if a drachm of tincture of rhubarb be added to it, it will generally agree with the most fastidious stomachs. The decoction of the seeds contains a portion of oil diffused in the mucilage; it is, therefore, a useful ingredient for injections, when there is abrasion or ulceration of the mucous membrane of the intestines: and the infusion is a valuable drink for persons who are suffering from irritation of the fauces.

We need scarcely state, that one of our most useful and common poultices is made with linseed-meal and boiling water.

[a] When fixed oils are exposed to the open air, or to oxygen gas, they undergo different changes according to the oil. All of them, as far as experience has gone, have the property of absorbing oxygen; and by uniting with it, they become more and more viscid, and terminate at last in a solid state, being apparently saturated with oxygen. Some retain their transparency after they have become solid; while others become opaque, and assume the appearance of tallow, or wax. Those that remain transparent are called *drying oils*, while those that become opaque are called *fat oils*.

[b] Pharmacologia. Edit. 5. vol. i. p. 144.

Myosotis palustris.

MYOSOTIS PALUSTRIS.—THE FORGET-ME-NOT.

CLASS V. PENTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, BORAGINEÆ.——THE BORAGE TRIBE.

HAIRS of the stem adpressed: leaves obovate-lanceolate, obtuse, rather scabrous from strigæ: racemes bractless: pedicels diverging while bearing the fruit, nearly twice the length of the calyx, which is 5-parted, obtuse, and spreading, and equalling the tube of the corolla; limb of corolla flat, longer than the tube. Native throughout Europe, Asia, and North America, in humid meadows, bogs, banks of rivers, rivulets, and ditches; plentiful in Britain, in like situations. Plants pale green, roughish stems creeping at the base. Racemes simple or conjugate. Corolla blue, throat yellow, tube length of calyx, segments of the limb obovate, emarginate, or obcordate. There is also a variety of this with white flowers. This, the Forget-me-not, is the emblem of affection among the Germans. It is now a general favourite, and deservedly so; its beauty is so striking as to have acquired for it a kind of proverbial name. Few who have observed the flower are likely to forget it. But no where are these beautiful flowers found in such great abundance, as on the banks of a brook near the Luxembourg. The peasants call that brook the "Fairy Bath," or the "Cascade of the enchanted Oak;" these two names are given to it on account of the beauty of its source, whence it issues murmuring at the foot of a very old oak. The waters of the brook at first roll on from cascade to cascade, under a long vault of verdure, and afterward flow gently through an extensive meadow: then they appear to the enchanted eye as a long silver thread. The southern bank alone is covered with a thick tapestry of the Forget-me-not; its pretty flowers spangle in July, clad in as bright a blue as that of the cerulean sky. Then they incline as if they took delight in admiring themselves in the crystal waters, whose purity is unequalled. On this spot the young girls frequently assemble to celebrate their birth-days, by dancing on the borders of the brook. When covered with these lovely flowers we might suppose them to be nymphs celebrating games in honour of the naiad of the enchanted oak.

It is related that a young couple, who were on the eve of being united, whilst walking along the delightful banks of the Danube, saw one of these lovely flowers floating on the waves which seemed ready to carry it away. The affianced bride admired the beauty of the flower, and regretted its fatal destiny. The lover was induced to precipitate himself into the water, where he had no sooner seized the flower than he sank into the flood, but making a last effort, he threw the flower upon the shore, and at the moment of disappearing for ever, he exclaimed, "*Vergiss mein nicht,*" since which time this flower has been made emblematical, and taken the name of "Forget-me-not."

The Myosotides are mucilaginous and slightly astringent, and have been used in decoctions as *Collyria;* and the leaves are bruised and made into emollient poultices, which are said to be serviceable in inflammation of the eyes. They are, however, very seldom employed in medicine.

Fond memory's flower of azure dye!
Permit thy Bard one boon to crave
When in death's narrow bed I lie,
Oh! bloom around my narrow grave:
And if some tender, faithful friend
Should, led by love, approach the spot
And o'er thy flowers admiring bend,
Then say for me. "Forget me not."

Mrs. Opie.

The following extract is from the Flora Domestica :—

The fashion, so long prevalent in this country, of adorning the hair with artificial flowers, is in some countries improved upon by the use of the natural. Thunberg describes it as a common custom in Batavia; and Southey, speaking of the women of Paulista, in Brazil, says, "Flowers were an indispensable part of the female head-dress, a natural fashion in a land where the sweetest flowers blossom in all seasons; but the beauty of the costume was destroyed by the odious custom of wearing powder, with which the Paulista women of all ages loaded their heads." Again, he says, "When a stranger is introduced to a Brazilian lady, it is an act of courtesy in her to take a flower from her head and present it to him, and he is expected to return the compliment in the course of his visit."

In some parts of Germany the ladies wear natural flowers, particularly the beautiful blue corn-flower *(Centaurea Cyanus.)*

A friend has obliged me with the following lines, paraphrased from the Greek of Meleager. "This delicious little Greek poem," says he, "is one of those which I always seem to scent the very odour of, as if I held a bunch of flowers to my face."

"A flowery crown will I compose—
I'll weave the crocus, weave the rose;
I'll weave narcissus, newly wet,
The hyacinth, and violet;
And myrtle shall supply me green,
And lilies laugh in light between:
That the rich tendrils of my beauty's hair
May burst into their crowning flowers, and light the painted air."

Sometimes it happens, says Dr. Aikin, that a sudden shower of rain falls during a frost, and immediately turns to ice A remarkable scene is then produced, which the following lines most beautifully describe.

Ere yet the clouds let fall the treasur'd snow,
Or winds begun thro' hazy skies to blow,
At ev'ning a keen eastern breeze arose,
And the descending rain unsullied froze.
Soon as the silent shades of night withdrew,
The ruddy morn disclosed at once to view
The face of nature in a rich disguise,
And brighten'd every object to my eyes:
For every shrub, and every blade of grass,
And every pointed thorn seem'd wrought in glass;
In pearls and rubies rich the hawthorns show,
While thro' the ice the crimson berries glow.
The thick-sprung reeds the wat'ry marshes yield,
Seem polish'd lances in a hostile field.
The stag, in limpid currents, with surprise,
Sees crystal branches on his forehead rise.
The spreading oak, the beech, and tow'ring pine,
Glaz'd over, in the freezing ether shine.
The frighted birds the rattling branches shun,
That wave and glitter in the distant sun.
When, if a sudden gust of wind arise,
The brittle forest into atoms flies:
The crackling wood beneath the tempest bends,
And in a spangled show'r the prospect ends.

Philips, Lett. from Copenhagen.

Digitalis purpurea

DIGITALIS PURPUREA.—PURPLE FOXGLOVE, OR FOLKSGLOVE.

CLASS XIV. DIDYNAMIA.——ORDER II. ANGIOSPERMIA.

NATURAL ORDER, SCROPHULARINEÆ.——THE FIGWORT TRIBE.

FOXGLOVE, a corruption of *Folksglove*, an orthography which should be restored, may be considered not only as the most beautiful and conspicuous of our indigenous plants, but as one of the most valuable articles of the materia medica. It is equally remarkable for its stately growth, its elegant flowers, and its powerful effects on the animal economy. It is a biennial plant, growing abundantly in most parts of the island, particularly in the northern counties, on hedge-banks, and uncultivated places, delighting in a sandy or gravelly soil. We have found it, but in no great plenty, in most of the woods near London; but Sir James E. Smith affirms that it rarely, if ever, occurs in Norfolk or Suffolk. It flowers in June and July.

The name Digitalis, derived by Fuchsius, who first gave it to this plant, from *digitabulum*, a thimble, has an evident reference to the finger-like flowers of the plant; a similitude which has been recognized in almost every country in which it is found; as may be seen by the names, Fingerbor, Fingerhut, Vingerhoed, Digital, &c., given to it by the Spaniards, the Dutch, the Germans, and the Swedes. Mr Rootsey in a very interesting commentary on the medical plants mentioned by Shakespeare, communicated to the Medico-Botanical Society of London, expresses an opinion that this plant is the "long purples" of the poet, an opinion contrary to that generally entertained. He says, "the names of *Foxglove* or *Folksglove*, *Finger flower*, or Digitalis, and dog's fingers, as the plant is called in Wales, together with the magnificent spike of purple flowers borne by the digitalis *purpurea*, induce me to conjecture that it is alluded to by our illustrious poet as *long purples*.

"There is a willow grows aslant the brook
That shews his hoar leaves in the glassy stream;
There with fantastic garlands did she make,
Of crow-flowers, nettles, daisies, and long purples,
That liberal shepherds give a grosser name,
But our cold maids do *dead men's fingers* call them."

Hamlet, iv. 7.

This question, however, still remains unsettled, for as the writer adds:—

"The common *blue-bells* to which Salisbury attached the epithet *festalis*, might perhaps be thought to be the garland flowers of Ophelia; but Lightfoot says, it is the Orchis mascula; though Martyn considers that the name of *dead men's fingers* would better apply to the palmated species."

Foxglove rises with a round, erect, downy, and generally undivided stem, to the height of three or four feet. The root is whitish, and consists of numerous long and slender fibres. The lower leaves are large, ovate-pointed, on short winged foot-stalks, and spreading upon the ground; the cauline ones are alternate, or elliptic-oblong, somewhat decurrent; and both kinds are downy, much wrinkled, crenate, and of a dull green colour on the upper surface, and paler underneath. The flowers are numerous, on short footstalks, drooping, of a bright reddish or purple colour, and terminate the stem in an elegant pyramidal spike. The calyx is divided into five acute segments; the upper one narrower than the rest: the corolla is bell-shaped, hairy, and spotted within, inflated on the lower side, and contracted at the base; the upper lip is slightly emarginate, and smaller than the lower one. The filaments are awl-shaped, inserted into the base of the corolla, bent downwards, and supporting large, oval, deeply cloven anthers; the germen is ovate, pointed, having a simple style, with a bifid stigma closed in the early stages, but opening as the flowers arrive at puberty. The capsule is ovate, acuminate, the length of the calyx, bilocular, with two valves, containing numerous small, oblong, brownish seeds. A variety with white flowers is cultivated in gardens, as an ornamental plant.

Although this plant is so elegant and stately in its appearance, it does not appear to have attracted the attention of the ancients. Fuchsius, in his *Hist. Stirp.* 1542, is the first author who notices it: and from him it received the name of Digitalis, in allusion to the German name of *Fingerhut*, which signifies a finger-stall, from the blossoms resembling the finger of a glove. All parts of the plant have at different times

been used, and we understand that the flowers are still preferred by some practitioners in the west of England. It was first introduced into the London Pharmacopœia in 1721, (*folia, flores, semen,*) was discarded in the ensuing edition of 1746, and has been since restored; having encountered a like alternation of favour and proscription in the Edinburgh College.

Our own countrymen have long ascribed to it medicinal effects, for according to Gerarde, p. 647, "boiled in water or wine and drunken, it doth cut and consume the thicke toughness of gross and slimie flegme, and naughtie humours. The same, or boiled with honied water and sugar, doth scoure and clense the brest, ripeneth and bringeth forth tough clammie flegme. It openeth also the stoppage of the liver, spleene, and milt, and of the inward parts:" and Parkinson not only recommended it to be externally applied to scrofulous diseases, but extols its expectorant and other virtues. He also states, that it is "effective against the falling sickness." Dr. Withering never observed any of our cattle to eat it.

Qualities and Chemical Properties.—The leaves of Digitalis should be collected just as the plant is about to blossom, and the advice which we gave respecting the drying and preservation of Conium *maculatum*, applies equally to them; and those plants should be preferred for medicinal purposes which grow wild in elevated situations exposed to the sun. For although the beauty of the foxglove has made it a denizen of our gardens, its properties are much impaired by cultivation, especially in damp or shady situations. When properly dried, the leaves have a slight narcotic odour, and a bitterish nauseous taste. When reduced to powder, they are of a beautiful green colour, which will be preserved by exclusion from light and air. The active principle has been separated by M. le Rayer, and is termed *Digitaline*. It is inodorous, very bitter, deliquescent, and soluble in water, alcohol, and ether; and is decomposed by heat. He procured it by digesting the leaves in ether, both cold and warm, and treating the solution with hydrated oxide of lead; or the infusion may be evaporated to the consistence of an extract, which, if dissolved in distilled water, will part with some chlorophylle: and if the solution, which reddens litmus paper, be acted on with acetate of lead, filtered, evaporated, and again treated with ether and re-evaporated the result is *Digitaline* or *Digitalia*.

Digitalis appears to contain extractive resin, and some saline matter. Both water and alcohol extract the virtues of the leaves, but boiling them impairs their power. Precipitates are produced by *sulphate of iron*, acetate of lead, and the infusion of yellow bark, &c. which are *incompatibles* in mixtures containing Digitalis, if used medicinally; but the latter is an excellent antidote to counteract the baneful influence of an over-dose.

Medical Properties and Uses.—Were all that had been written on Digitalis to be collected, a ponderous volume of contradiction would be the result; for although the known virtues of the plant may be stated in a very small compass, it was at one time held forth as a never-failing remedy in the worst and most common of diseases—pulmonary consumption. It was of course prescribed by almost every practitioner throughout the United Kingdom: but time, which settles down the minds of men to a just appreciation of the truth, has proved that it is only in the incipient stages of tubercular consumption, when inflammatory action has been subdued by other means, or in the advanced stages when the pulse shows that bleeding has diminished the chronic inflammation of the substance of the lungs, that the sedative effects of Digitalis, which are so benign and truly valuable, can be advantageously produced.

Dr. A. T. Thomson makes the following pertinent remarks. "The Pharmacopœias order an infusion and a tincture of Digitalis; but there is great uncertainty in both preparations, owing to the careless manner in which the leaves are frequently dried; and the only advantage of even a correct analysis of the plant would be the obtaining a vehicle which should always ensure a preparation of a definite strength. As far as my experiments enable me to decide, I am disposed to think that such a vehicle will be found in ether, which takes up the whole of the colouring matter, and when the solution is evaporated, leaves a green principle, possessing in a high degree the properties of the plant. The solution of this in alcohol might be employed with advantage. *Mat. Med.* i. 580. An instance in point is recorded by Dr. Williams, who says that "two ounces of the tincture of the London College have been taken in two doses, with a short interval between them, yet without causing any inconvenience.

This is not the only plant, valuable as a medicine, says "Burnett in his outlines" which Withering introduced into practice; and if it be the lot of an individual to discover one, and such an one, amongst our native weeds, it would encourage the belief that there still may be many more, "blest secrets," more yet "unpublished virtues of the earth," hereafter to be revealed, as "aidant and remediate to the sick man's distress," and which, if we cannot hope they will "spring with our tears" we may more than hope, they will be found by our exertions.

Fuchsia fulgens

FUCHSIA FULGENS.—THE SHINING FUCHSIA.

Class VIII. OCTANDRIA.—Order I. MONOGYNIA.

Natural Order, ONAGRARIÆ.—THE EVENING PRIMROSE TRIBE.

Fuchsia Fulgens. Branches glabrous; leaves opposite, petiolate, ovate, cordate, acute, denticulated, glabrous; pedicels axillary, shorter than the flowers, upper ones racemose; lobes of calyx ovate lanceolate, acute, exceeding the petals, which are acutish. Native of Mexico. Branches and pedicels red. Flowers reddish scarlet, 2 inches long. Racemes drooping at the apex.

This most beautiful plant was named Fuchsia in honour of Leonard Fuchs, a celebrated German botanist, author of Historia Stirpium in 1542. It now flowers in the open air, and should always be kept moist. The fuchsia is an elegant plant for the drawing-room or study.

Although it is true, (says the author of the Flora Domestica,) that in and near London plants will not thrive so well as in a purer air, yet persons who are condemned to a town life, will do well to obtain whatever substitute for a garden as may be in their power, for there is confessedly no greater folly than that of refusing all pleasure, because we cannot have all we desire.

A lover of flowers, who cannot have a garden or a greenhouse, will gladly cherish anything that has the aspect of a green leaf.

> ———"These serve him with a hint
> That nature lives; that sight-refreshing green
> Is still the livery she delights to wear,
> Though sickly samples of th'exuberant whole.
> What are the casements lined with creeping herbs,
> The prouder sashes fronted with a range
> Of orange, myrtle, or the fragrant weed
> The Frenchman's darling? Are they not all proofs,
> That man immured in cities, still retains
> His inborn, inextinguishable thirst
> Of rural scenes, compensating his loss
> By supplemental shifts, the best he may?"———Cowper.

The glory of October, however, (says Mr. Howitt,) is the gorgeous splendour of wood-scenery. Woods have in all ages vividly impressed the human mind; they possess a majesty and sublimity which strike and charm the eye. Their silence and obscurity affect the imagination with a meditative awe. They soothe the spirit by their grateful seclusion, and delight it by glimpses of their wild inhabitants, by their novel cries, and by odours and beautiful phenomena peculiar to themselves. This may be more particularly applied to our own woods, woods comparatively reclaimed; but in less populous and cultivated countries they possess a far more wild and gloomy character. The abodes of banditti, of wild beasts and deadly reptiles, they truly merit the epithet of "salvage woods," which Spenser has bestowed upon them. In remote ages their fearful solitudes and ever-brooding shadows fostered superstition and peopled them with satyrs, fauns, dryads, hamadryads,and innumerable spirits of dubious natures. The same cause consecrated them to religious rites; it was from the mighty and ancient oak of Dodona that the earliest oracles of Greece were pronounced. The Syrians had their groves dedicated to Baal, and Ashtaroth the queen of Heaven, and infected the Israelites with their idolatrous customs. In the heart of woods the Druid cut down the bough of misletoe, and performed the horrible ceremonies of his religion. The philosophers of Greece resorted to groves, as schools the most august and benefiting the delivery of their sublime precepts. In the depths of woods did anchorites seek to forget the world, and to prepare their hearts for the purity of heaven. To lovers and poets they have ever been favourite haunts; and the poets, by making them the scenes and subjects of their most beautiful fictions and descriptions, have added to their native charms a thousand delightful associations.

Ariosto, Tasso, Spenser, Shakspeare, and Milton, have sanctified them to the hearts of all generations. What a world of magnificent creations comes swarming upon the memory as we wander in woods! The gallant knights and beautiful dames, the magical castles and hippogriffs of the Orlando; the enchanted forest, the Armida and Erminia of the Gerusalemme Liberata; "Fair Una with her milk white lamb," and all the satyrs, Archimages, the fair Florimels and false Duessas of the Faery Queene; Ariel and Caliban, Jaques and his motley fool in Arden, the fairies of the Midsummer-Nights' Dream, Oberon, Titania, and that pleasantest of all mischief-makers, ineffable Puck, the noble spirit of the immortal Comus. With such company, woods are to us anything but solitudes—they are populous and inexhaustible worlds, were creatures that mock the grasp but not the mind, a matchless phantasmagoria, flit before us; alternately make us merry with their pleasant follies, delight us with their romantic grandeur and beauty, and elevate our hearts with their sublime sentiments. What wisdom do we learn in the world that they do not teach us better! What music do we hear like that which bursts from the pipes of the universal Pan, or comes from some viewless source with the Æolian melodies of Faery-land? Whatever woods have been to all ages, to all descriptions of superior mind, to all the sages and poets of the past world, they are to us. We have the varied whole of their sentiments, feelings, and fancies, bequeathed as an immortal legacy, and combined and concentrated for our gratification and advantage; besides the innumerable pleasures which modern art has thrown to the accumulated wealth of all antiquity. Botany has introduced us to a more intimate acquaintance with the names and characters, and with something also of the physical economy, of both "the trees of the wood" and of the smallest plants which flourish at their feet; so that wherever we cast our eyes, we behold matter for both admiration and research.

What can be more beautiful than trees? their lofty trunks august in their simplicity, asserting to the most inexperienced eye their infinite superiority over the imitative pillars of man's pride! their graceful play of wide-spreading branches! and all the delicate and glorious machinery of buds, leaves, flowers and fruit, that with more than magical effect burst forth, from naked and rigid twigs, with all the rich and brilliant, and unimaginably varied colours under heaven; breathing delectable odours, pure, and fresh, and animating; pouring out spices and medicinal essences; and making music, from the softest and the most melancholy under tones to the full organ-peal of the tempest. I wonder not that trees have commanded the admiration of men in all nations and periods of the world. What is the richest country without trees? What barren and monotonous spot can they not convert into a paradise? Xerxes, in the midst of his ambitious enterprise, stopped his vast army to contemplate the beauty of a tree. Cicero, from the throng, and exertion, and anxiety of the Forum, was accustomed, Pliny tells us, to steal forth to a grove of palm-trees, to refresh and invigorate his spirit. In the Scaplan Groves, the same author adds, Thucydides was supposed to have composed his noble histories. The Greek and Roman classics, indeed, abound with expressions of admiration of trees and woods, and with customs which have originated in that admiration; but above all, as the Bible surpasses, in the splendour and majesty of its poetry, all books in the world, so is its silver and arborescent imagery the most bold and beautiful. Beneath some spreading tree are the ancient patriarchs revealed to us sitting in contemplation, or receiving the visits of angels; and what a calm and dignified picture of primeval life is presented to our imagination, at the mention of Deborah, the wife of Lapidoth, judging the twelve tribes of Israel, between Ramah and Bethel, in Mount Ephraim, beneath the palm-tree of Deborah! The oaks of Bashan, and the cedars of Lebanon, are but other and better names for glory and power. The vine, the olive, and the fig-tree are made imperishable symbols of peace, plenty, and festivity. David in his psalms, Solomon in his songs and proverbs, the Prophets in the sublime outpourings of their awful inspiration, and Christ in his parables—those most beautiful and perfect of all allegories—luxuriate in signs and similes drawn from the fair trees of the East.

Who has walked in woods, that has not felt them become to him as superb temples, filling him with a desire:—

> To contemplate and worship Him whose mind
> Stirs in the stilly night-like solitude,
> Or breathes in whispers, on the gentle wind,
> Through vast cathedral groves, and leaves a calm behind.———Millhouse.

Galeanandra Devoniana f.

GALEANDRA DEVONIANA.—DUKE OF DEVONSHIRE'S GALEANDRA.

Class XX. GYNANDRIA.—Order I. MONANDRIA.

Natural Order, ORCHIDEÆ.——THE ORCHIS TRIBE.

Character of the Genus, Galeandra. Perianth spreading, sepals and petals nearly equal, ascending. Lip undivided or obscurely three-lobed, spurred, internally enlarged by four plates or lamellæ. Column erect, membranaceously winged, clinandrium directed downwards. Pollen-masses two, hollowed out behind, the caudicula short, and adhering to the short diverging two-lobed gland.

Description of the Species, Galeandra Devoniana. Stem erect, simple, round, many-leaved, leaves embracing the stem, lanceolate, three-nerved. Inflorescence a racemose peduncle, sessile, erect, many-flowered. Perianth of five spreading folioles, nearly equal, of a yellowish green, except the lip, which is of a whitish or cream colour, marked by pinkish, longitudinal, and irregularly transverse lines. Lip prolonged into a spur of a green colour; the lamina ovate, obtuse, crenulate, marked, at the hinder part, with four elevated plates. Anthers furnished with a fleshy rounded pubescent crest.

Popular and Geographical Notice. The following is an account of this plant, by Mr. Schomburg, its discoverer, extracted from his letter, in Dr. Lindley's elegant Sertum Orchidaceum: "During our peregrinations we have seen this plant no where else but at the banks of the Rio Negro, a tributary of the Amazon; where, in the neighbourhood of Barcellos, or Mariua, we found it growing in large clusters on the trees which lined the river, sometimes on the Mauritia aculeata, or even on the ground, where the soil consisted of vegetable mould. It was so luxuriant that some of the large clusters of stems, which sprouted from a common root, might have been from ten to twelve feet in circumference." The profusion of orchidaceous plants in tropical America may be judged of by the following statement of Dr. Walsh: "The destruction of a tree in these woods does not lessen the abundance of vegetable life. On every stem which had lost its own bark and leaves, a crop of parasites had succeeded, and covered the naked wood with their no less luxuriant leaves and flowers. Of these the different species of air-plants, and Tillandsias were the most remarkable. The first were no less singular than beautiful; they attach themselves to the driest and most sapless surface, and bloom as if springing from the richest soils. A specimen of one of these, which I thought curious, I threw into my portmanteau, where it was forgotten; and some months after, in unfolding some linen, I was astonished to find a rich scarlet flower in full blow; it had not only lived, but vegetated and blossomed, though so long excluded from air, light, and humidity. Every withered tree here was covered with them, bearing flowers of all hues, from the brightest yellow to the deepest scarlet." Notices of Brazil, II, p. 306.

Introduction; Where Grown; Culture. Sent, by Mr. Schomburg, to the ever-augmenting stores of the Messrs. Loddiges, at Hackney. It grows in a pot, in the stove. Much attention must be given to ensure free drainage.

Derivation of the Names. Galeandra, a word most inelegantly compounded of Galea, a helmet, and ανηρ a stamen, from the helmet-shaped crest of the anther. Devoniana, a justly merited compliment to the Duke of Devonshire, President of the Horticultural Society.

JANUARY. To this month there is an ode with a verse beautifully descriptive of the Roman symbol of the year:

'Tis he! the two-fac'd Janus comes in view;
Wild hyacinths his robe adorn,
And snow-drops, rivals of the morn.
He spurns the goat aside,
But smiles upon the new
Emerging year with pride;
And now unlocks, with agate key,
The ruby gates of orient day.

We stop a moment to peep into the "Mirror of the Months," and inquire "Who can see a new year open upon him, without being better for the prospect—without making sundry wise reflections, (for *any* reflections on this subject *must* be comparatively wise ones,) on the step he is about to take towards the goal of his being? Every first of January that we arrive at, is an imaginary mile-stone on the turnpike track of human life; at once a resting place for thought and meditation, and a starting point for fresh exertion in the performance of our journey. The man who does not at least *propose to himself* to be better *this* year than he was last, must be either very good or very bad indeed! And only to *propose* to be better, is something; if nothing else, it is an acknowledgment of our *need* to be so, which is the first step towards amendment. But, in fact, to propose to oneself to do well, is in some sort to *do* well, positively; for there is no such thing as a stationary point in human endeavours; he who is not worse to-day, than he was yesterday, is better; and he who is not better, is worse."

It is written, "Improve your time," in the text-hand set of copies put before us when we were better taught to write than to understand what we wrote. How often these three words recurred at that period without their meaning being discovered! How often and how serviceably they have recurred since to some who have obeyed the injunction! How painful has reflection been to others, who recollecting it, preferred to *suffer* rather than to *do!*

The author of the paragraph quoted above, expresses forcible remembrance of his youthful pleasures on the coming in of the new year.—"Hail! to thee, January!—all hail! cold and wintry as thou art, if it be but in virtue of thy first day. The day, as the French call it, *par excellence*, 'Le jour de l'an.' Come about me, all ye little schoolboys that have escaped from the unnatural thraldom of your taskwork—come crowding about me, with your untamed hearts shouting in your unmodulated voices, and your happy spirits dancing an untaught measure in your eyes! Come, and help me to speak the praises of new-year's day!—*your* day—one of the three which have, of late, become yours almost exclusively, and which have bettered you, and have been bettered themselves, by the change. Christmas-day, which *was;* New-year's-day, which *is;* and Twelfth-day, which *is to be;* let us compel them all three into our presence—with a whisk of our imaginative wand convert them into one, as the conjurer does his three glittering balls, and then enjoy them all together, with their dressings, and coachings, and visitings, and greetings, and gifts, and "many happy returns" with their plum-puddings, and mince-pies, and twelfth-cakes, and neguses, with their forfeits, and fortune-tellings, and blindman's-buffs, and sittings up to supper, with their new penknives, and pastrycooks' shops, in short, with their endless round of ever new nothings, the absence of a relish for which is but ill supplied, in after life, by that feverish lingering and thirsting after excitement, which usurp without filling its place. Oh! that I might enjoy those nothings once again in fact, as I can in fancy! But I fear the wish is worse than an idle one; for it not only may not be, but it ought not to be. "We cannot have our cake and eat it too," as the vulgar somewhat vulgarly, but not less shrewdly, express it. And this is as it should be; for if we could, it would neither be worth the eating nor the having."

Garcinia Cambogia.

GARCINIA CAMBOGIA.—GAMBOGE MANGOSTAN.

CLASS XI. DODECANDRIA———ORDER I. MONOGYNIA.

NATURAL ORDER, GUTTIFERÆ.—THE MANGOSTEEN TRIBE.

(*a*) Fruit; (*b*) Section of the same; (*c*) Seed.

GARCINIA Cambogia is one of the plants which yield the well known and valuable gum-resin called Gamboge, from *Camboge*, or *Cambodge*, the name of the East Indian provinces whence it is chiefly procured. This tree is a native of Malabar, growing in the forests of Travancore, where it is known to the natives by the name *Ghorkapli;* flowering in March, and ripening its fruit in June and July.

It is a tall tree, with a trunk about four inches in diameter, and widely spreading, round, smooth branches. The leaves are opposite, three or four inches long, elliptical, entire, tapering at each extremity, smooth, paler beneath; their lateral veins few and distant, forming very acute angles with the midrib, and placed on short channelled footstalks. The flower stalks, which are nearly an inch long, grow in pairs just below the insertion of each leaf, and are by no means terminal. The calyx is 4-leaved, consisting of two opposite pairs of leaflets, the exterior pair rather smaller; all nearly round, firm, fleshy, smooth on both sides, and permanent. The petals are four, roundish, twice the length of the corolla, and of a yellow colour. The filaments are from fifteen to twenty, shorter than the germen, slightly united at the base, and bearing roundish anthers. The germen is superior, round, 8-10 lobed, 8-10 celled, with one ovule in each cell. There is no style. The stigma is peltate, with as many divisions as there are cells in the germen. The fruit is pendulous, the size of a small orange, but furrowed like a melon, and crowned with the tumid crenate remains of the stigma; it is of a yellow colour when ripe, and containing a sweetish pulp, with some degree of acidity. The seeds are said to be from eight to ten, each enveloped in its own proper, succulent, yellowish aril.

From the trunk and branches, when wounded, exudes a viscid, but tasteless juice, which hardens into a brownish yellow gum-resin.

In the East Indies it is believed to be a provocative of appetite, and is much esteemed, and enters into the composition of many sauces. Its chief consumption is, however, as a yellow pigment. "Gamboge," says Mr. Field in his ingenious work entitled Chromatography "is a concrete vegetal substance, of a gum-resinous nature, and beautiful yellow colour, bright and transparent, but not of great depth. When properly used, it is more durable than generally reputed, both in water and oil: it is deepened in some degree by ammoniacal and impure air, and somewhat weakened, but not easily discoloured, by the action of light. Time effects less change in this colour than on other bright vegetal yellows; but white lead and other metallines injure, and terrene and alkaline substances redden it. It works remarkably well in water with which it forms an opaque solution, without grinding or preparation, by means of its natural gum; but it is with difficulty used in oil, &c., in a dry state. In its natural state it, however, dries well, and lasts in glazing when deprived of its gum. It is perfectly innocent with regard to other colours, and though it is a strong medicine, is not dangerous or deleterious in use. * * * * * *

It has also been employed as a yellow lake prepared upon an aluminous base; but a much better way than either is to dissolve it into a paste in water, and mix it with lemon yellow, with which pigment being diffused it goes readily into oil or varnish."

In the Pharmacopœia of the London College the Stalagmitis cambogiöides is supposed to be the plant which produces gamboge. According to the Edinburgh College, it is a species of Hebradendron. For the greater part of the following observations we are indebted to Dr. Pereira's excellent lectures in the Medical Gazette.

SIAM GAMBOGE PLANT.

GAMBOGE was first mentioned by Clusius in 1605, who received it in 1603 from Peter Garet of Amsterdam, where it had been lately brought from China, by Admiral Van Neck and his companions. Hitherto the

plant yielding Siam Gamboge has not been ascertained; for no competent European botanist has seen either the tree, or specimens of it. That it is a guttiferous plant cannot be doubted, but the precise species, or even genus is still uncertain. It is not impossible that it may be some plant which yields Ceylon Gamboge (Hebradendron cambogioides); but at present we are deficient of proofs of this notion, though several circumstances favor it. The only account which we possess of the method of obtaining Siam Gamboge, is that given to König by a Catholic Priest residing in Cochin China. According to this account, when the leaves or branchlets are broken a yellow milky juice issues *guttatim* (hence the origin of the term *Gummi Guttæ* applied to this substance,) and is received either on the leaves of the tree or in cocoa nut shells, and from thence is transferred into large flat earthern vessels, where it is allowed to harden during the summer season, and is afterwards enveloped by leaves. From another authority we learn that the cylindrical form of some of the pieces is owing to the juice being run into the tubular cavities of bamboo canes. *Resin of Gamboge: Gambogin or Gambogic acid.* This resin is brittle, in thin layers, of a deep orange colour, in thicker masses, of a cherry red tint. When reduced to this state of fine powder, its colour is lively gamboge yellow. "Its colour is so intense 'says Dr. Christison,' that it communicates an appreciable yellowness to ten thousand times its weight of spirit." A thin film of gamboge emulsion is an excellent microscopic object for observing the *active molecules*, described by Mr. Brown in the *Philosophical Magazine* for September 1828 and 1829.

Detection of Gamboge.—Sometimes the detection of gamboge becomes an object of medico-legal inquiries, as in the trial of Joseph Webb, for manslaughter, at the York Assizes, 1834 *(see Frazer's Report)*. A few remarks, therefore, may not be useless as to the mode of proceeding, more especially as the subject is not noticed by Dr. Christison. To recognize gamboge in any substance supposed to contain it, proceed as follows: digest one portion of the suspected substance in alcohol or rectified spirit, and another portion in rectified æther. *The alcoholic solution of gamboge* possesses the following properties; its colour is orange red; on the addition of water it forms a bright yellow opaque emulsion; if to this emulsion we add a few drops of liquor potassæ, the yellow colour changes to bright red, and the liquid becomes immediately transparent and forms characteristic precipitates with the following substances: with the acids, or salts of gold, silver, palladium, lead, cobalt, or uranium, the precipitate is yellow; with the persalts of mercury, greenish yellow: with the chloride of manganese, orange red; with sulphate of copper, brown; with the protosalts of iron, a very dark precipitate. The precipitates produced with these metallic salts are *gamboyiates* of the respective metals. The *ætherial solution of gamboge* has an orange red colour: dropped on water, it forms, when the æther evaporates, a thin bright, yellow, opaque film or scum, which dissolves in caustic potash, forming a transparent red solution which conducts itself, with the above mentioned metallic salts, like the alcoholic solution. The only substance which, from its external appearance, might be confounded with gamboge is the substance improperly called *Botany Bay-gum* (*Resin of Xanthorræa hastile.*) The yellow colouring matter of saffron, rhubarb, turmeric, or zedoary, may, under some circumstances, be confounded with that of gamboge. The action of the before mentioned tests, however, readily distinguishes it.

Medical Properties and Uses.—Gamboge is a violent cathartic, and is apt to produce vomiting, griping, and other symptoms, which in certain constitutions have terminated in death, as proved in the conviction of two vendors of Morrison's pills; into the composition of which it enters pretty largely. To obviate its unpleasant effects Cullen was accustomed to give it in small and frequently-repeated doses, as three or four grains, rubbed with a little sugar, every three hours, and found it operate gently. Great caution is required in its administration. It is as a hydragogue purgative that it is prescribed in dropsical affections, and is then generally combined either with calomel, cream of tartar, or squills. It has been supposed to be peculiarly efficacious in expelling the tape-worm; but as a remedy in this case, its use is now very generally superseded by the oil of turpentine. It is soluble in a solution of potass, and is sometimes preferred in this form in doses of from thirty to forty drops, twice a day.

Orfila classes it amongst the acrid poisons, and considers that it does not produce death by being absorbed, but by exerting a powerful local action, in which the nervous system sympathizes.

Dose.—The usual dose is from two to five grains.

Off. Prep.—Pilulæ Cambogiæ compositæ. L. E.

Allium sativum.

ALLIUM SATIVUM.—COMMON GARLIC.

Class VI. HEXANDRIA.——Order I. MONOGYNIA.

Natural Order, ASPHODELEÆ.—THE ASPHODEL TRIBE.

Fig. (*a*) represents a flower; (*b*) the bulb; (*c*) a subordinate bulb, or clove.

The common or cultivated Garlic is a hardy, perennial bulbiferous plant, growing naturally in Sicily and the south of France; flowering in July, and has been cultivated in this country since 1548. It shows the same propensity to form bulbs instead of flowers as the A. *Scorodoprasum*, or Rocambole Garlic, which it also resembles in other respects.

The bulbs are composed of several oblong, subordinate bulbs, called cloves, of a pale colour internally, frequently tinged with purple on the outside, and enclosed in a common membrane, from the base of which proceed long white fibrous roots. Each clove being planted, grows, and in one season attains the size and structure of the parent bulb. The stem is simple, erect, solid, and rises about two feet in height, surrounded with many long, flat, linear, pointed leaves, of a yellowish green colour; and is terminated by a dense umbel, inclosed in a spathe containing both flowers and bulbs, which opens at one side and withers. The flowers are small and white, the perianth consists of six oblong petals, with tapering alternately 3-cleft filaments, shorter than the corolla, and supporting oblong, erect anthers: the germen is superior, short, angular, bearing a simple style, with a pointed stigma; the capsule is short, broad, 3-lobed and 3-celled, containing a few roundish, angular seeds.

This plant is the Σκορόδον of the Greeks, and is said to have been called Σκορόδον, *quasi* σκόριον ῥόδον, *rudis rosa*, on account of its offensive odour. Amongst the Greeks, garlic was held in such abhorrence, that those who partook of it were regarded as profane. The Egyptians, however, worshipped it; and the Romans gave it to their labourers to impart strength, and to their soldiers to excite courage; their game cocks were also fed with garlic previous to fighting. From the following lines of Persius, it appears that it was sometimes offered to propitiate the Gods:—

> "Hinc grandes Galli, et cum Sistro lusca sacerdos,
> Incussere Deos inflantes corpora, si non
> Prædictum, ter mane, caput gustaveris Alli."

Let this be as it may, Horace, having supped with Mæcenas, found himself very ill, in consequence of partaking of a dish of herbs in which garlic had been put, and upon this writes an ode to his friend, in which he condemns it in no measured terms.

Notwithstanding the denunciations of Horace, Olerius states that garlic was much used in his time by nobles and courtiers; and Haller avers that the inhabitants of all countries are very fond of it. It appears, from Tusser, to have been cultivated in the time of Queen Mary; who says in his twelfth verse for November—

> "Set garlicke and beans at St. Edmund the king."

Garlic is now usually propagated by detaching the cloves, and planting them in February or March; and in this way it seldom throws up a flower-stem. The soil should be light and dry; the sets are placed about four inches asunder, and between two and three inches deep. About the middle of June the leaves are tied in knots, to prevent the stronger plants from spindling or running to flower, and to promote the swelling of the bulbs. The crop is dug up in autumn, when the leaves begin to wither; the bulbs are then cleaned, tied in bunches, and hung in a dry room for use.

Besides the common garlic, the following species are frequently cultivated in our gardens for culinary and other domestic purposes.

1. Allium Schœnoprasum. The *Cive*, or *Chive Garlic*, is a small plant, with a naked stalk seldom exceeding five or six inches in height; cylindrical, hollow, somewhat tapering leaves, and simple stamens. It is a native of Britain, growing in meadows and pastures, but is not common; it occurs, according to Mr. Neill, among other places, in the south of Scotland, on low hills near Hawick; and also in some parts of Westmoreland; it is figured in "English Botany," v. 34, t. 2441. The bulbs are very small and flat, and grow connected together in clusters. The young leaves are employed principally for soups, and as a salad ingredient, in the spring. Sometimes they are added as a seasoning to omelets; and they are often eaten with bread and butter.

2. Allium Ascalonicum. The *Ascalonian Garlic*, or *Shallot*, with a naked stem, awl-shaped leaves, globose umbels, and 2-cleft stamens, is a perennial plant, a native of the Holy Land, where it was observed by Hasselquist. Eschalot (*Eschalotte*, Fr.) is the more correct appellation, the name being thus derived by some old authors, (Bauhin for example,) and it is styled *cepa sterilis*, or barren onion, from the circumstance of its seldom sending up a flower-stalk. It was cultivated here in 1633. In size and general growth the plant resembles the Chive; but it produces bulbous roots composed of cloves like garlic. These are used for culinary purposes in the manner of garlic, but they are milder, and do not communicate to the breath the offensive flavour which garlic or even raw onions impart.

3. Allium Scorodoprasum. *Rocambole Garlic; Ail d'Espagne* of the French, is a perennial plant, indigenous to Sweden and Denmark, and was cultivated by Gerarde in 1596. It has compound bulbs, like the common garlic, but the cloves are much smaller. It sends up a stem two feet high, which is bulbiferous; the leaves are rather broad and crenate at the edges; the flowers, which are collected in a sort of globular head, are of a pale purple colour. The cloves are used in the same manner as garlic or shallot, and nearly for the same purposes.

4. Allium Fistulosum. *Cibol or Welsh Onion; La Ciboule de St. Jaques* of the French, is a perennial plant, a native of Siberia. It appears to have been cultivated in 1629, but it was known a long time previously. It produces no bulbs, but the fistular leaves, and the lower part of the stems, are much used in salads, in the spring months.

Medical Properties and Uses.—Garlic resembles the squill in its medical properties, being diaphoretic, and expectorant. Cullen asserts that it acts as a stimulus more promptly and energetically than any other, and it is much commended by Bergius for its virtues in agues; in dropsical affections by Sydenham; and in scurvy by Dr. Lind. It has long been celebrated as a domestic remedy for worms; and instances are related by Mosentein and Tissot of its expelling tænia; the usual method of administering it being to give the expressed juice in a little milk, or to boil it with sugar to form a syrup: it is, however, rarely used in modern practice, having given place to remedies of more decided utility, and less nauseous to the taste. In France, the expressed juice diluted, is much employed in asthma, catarrh, and torpor of the abdominal viscera. Sydenham extols the application of garlic to the soles of the feet, as an efficacious method of producing revulsion from the head; and it is occasionally applied in the form of poultice to boils and indolent tumours. Given in considerable doses, garlic is capable of producing inflammation of the alimentary canal; but taken in moderation, is considered highly beneficial to soldiers and sailors when exposed to a damp atmosphere; and is recommended to make part of the regimen of those who are exposed to the plague and other pestilential disorders. Celsus recommends garlic mixed with rue, as an external application against the bites of scorpions and venomous spiders: "Et ad scorpionis autem et ad aranei ictum allium cum ruta recte miscetur, ex oleoque contritum, superimponitur."—*De Med.* l. v. c. xxv. 6.

Garlic, and onions of various kinds, were highly esteemed in Egypt, and according to Hasselquist, not without reason. He conjectures that the A. cepa, which is still used in that country in amazing quantities, and forms a most delicious food, is one of the species of onion arter which the Israelites longed when in the wilderness. He says, "whoever has tasted onions in Egypt will allow that none can be had better in any part of the universe. Here they are sweet, in other countries they are nauseous and strong; here they are soft, whereas, in the northern and other parts, they are hard, and their coats so compact that they are difficult of digestion. Hence they cannot in any place be eaten with less prejudice and more satisfaction than in Egypt."

There are none of our customs, says William Howitt, which more mark our *selfishness* than that of keeping singing birds in perpetual confinement, making the pleasure of our ears their misfortune, and that sweet gift, which God has given them wherewith to make themselves happy and the country delightful, the curse of their lives. If we were contented, however, with taking and rearing young ones, which never knew the actual blessing of liberty, or of propagating them in cages or aviaries, the evil would not be so enormous. But the practice of seizing singing birds, which have always enjoyed the freedom of the earth and air, in summer when they are busy with the pleasant cares of their nests or young broods, and subjecting them to a close prison, is detestable—doubly detestable in the case of *migratory* birds. They have not merely the common love of liberty, but the instinct of migration to struggle with; and it may be safely asserted, that out of every ten nightingales so caught, nine pine away and die. Yet the capture of nightingales is very extensively practised. The bird-catchers declare them to be the most easily taken of all birds; and scarcely can one of these glorious songsters alight in a copse or a thicket, but these kidnappers are upon it. Some of these men assure me that the female birds arrive about ten days later than the males, whose songs give notice of their retreats, on hearing which the females alight; therefore, when nightingales first appear, the bird-catchers are almost sure of taking only male birds, which, being the singers, are the only ones they want. The nightingale, a bird which God has created to fly from land to land to crown the pleasantness of spring with the most delicious music; or a lark, which he has made to soar, in the rapture of its heart, up to Heaven's gates,—"cribbed, cabined and confined" in a narrow cage by man, is one of the most melancholy objects on earth. Let those who have hearts for it keep them, and listen to them with what pleasure they may; for my part, while I am myself sensible of the charms of freedom, and of the delights of the summer fields, I shall continue to prefer the "wood notes wild" of liberty to a captive's wail.

Gentiana lutea L.

GENTIANA LUTEA, OR ASTERIA LUTEA.—YELLOW GENTIAN.

CLASS V. PENTANDRIA.——ORDER II. DIGYNIA.

NATURAL ORDER, GENTIANEÆ.——THE GENTIAN TRIBE.

OF this fine genus more than sixty species have been described by botanists, and six of these, viz. Gentiana *Pneumonanthe*, *acaulis*, *verna*, *Amarella*, *campestris*, and *nivalis*, are natives of Britain. They are elegant herbaceous plants, mostly inhabiting alpine regions of the northern hemisphere, and extremely various in size, with flowers generally of a vivid blue. Most of them are perennial; some few are annual; but they are all intensely bitter, especially the roots of the larger perennial kinds. Few of the species are cultivated in our gardens, except the Gentiana *acaulis*, or Dwarf Gentian, distinguished by its humble growth, its large, solitary, bell-shaped, exquisitely beautiful, azure flowers, and the G. *lutea*, or Yellow Gentian, neither of which is observed to thrive well in the vicinity of large towns. The latter, which is the officinal species, grows abundantly on the Alps of Switzerland and Austria, the Apennines, the Pyrenees, in the mountainous forests of many parts of Germany, and in North America. It thrives well in this country, in a deep, rich, loamy soil, flowering about the end of June or beginning of July, and few plants are more stately and ornamental.

The root is perennial, long, roundish, with numerous thick contorted branches, brown externally, and yellowish within. The stem is simple, erect, hollow, roundish, and somewhat annulated and square at the base near the root, cylindrical and smooth towards the top, and rises three or four feet in height. The lower leaves are petiolate, large, spear-shaped, entire, five or six-ribbed, and plaited; those of the stem are concave, ovate, smooth, sessile, almost embracing the stem, and of a yellowish green colour. The flowers are large and handsome, yellow, produced in whorls at the upper joints, and stand upon long peduncles. The calyx, which is a membranous, deciduous spathe, bursts on the side when the flower opens; the corolla is rotate, and divided into five or more long, narrow, spreading, elliptical segments. The filaments vary from five to eight, according to the number of segments, and are alternate therewith; they are shorter than the corolla, and furnished with long erect anthers. The germen is conical, crowned with two sessile reflected stigmas; and becomes a conical capsule, divided into two valves, and contains numerous small, compressed, winged seeds.

The scientific name, Gentiana, was conferred on this genus in commemoration of Gentius, a king of Illyria, who, according to Pliny, first discovered, or at least experienced the virtue of the principal species, the Gentiana *lutea* of Linnæus, in the cure of the plague, which infected his army. The vulgar name, *Fell-wort* or *Gall-wort*, is strictly applicable to the whole genus, on account of the extreme bitterness of the plants which compose it.

CULTURE.—Yellow Gentian delights in a deep loamy soil and a shady situation, where it will thrive much better than in a light soil, or an open exposed site. It is propagated by seed, which should be sown in pots soon after it is ripe, for if it is kept till the spring it will not germinate: these pots should be placed in a shady situation, and kept clean from weeds. In the spring the plants will appear, when they must be duly watered in dry weather, and kept free from weeds till the following autumn; they should then be carefully shaken out of the pots, so as not to break or injure the roots; and a shady border of loamy earth should be well dug and prepared to receive them, into which the plants should be put, at about six inches distance each way, observing to let the tops of the roots be a little below the surface of the ground, then press the earth close to the roots; after this they will require no farther care but to keep them constantly clean from weeds; and if the following spring should prove dry, they should be regularly watered, which will greatly forward their growth. In this border the plants may stand two years, by which time they will be fit to transplant where they are designed to remain; therefore in autumn, so soon as the leaves decay, they may be removed; but as the roots of these plants run deep into the ground, like carrots, there must be great care taken in digging them up not to cut or break their roots, for that will much weaken, if it does not kill them. After the plants are well fixed in their places, they require no particular care, but to dig the ground about them early in the spring before they begin to shoot, and in the summer to keep them clear from weeds. The roots of these plants will continue for many years, but the stalks decay every autumn; the same roots do not flower two years together, and rarely oftener than every third year; but when they flower strong, says Professor Martyn, to whose edition of Miller's Dictionary we owe the preceding remarks, they make a fine appearance; and as they delight in moist shady ground, where but few ornamental plants will thrive, they should not be wanting in good gardens. The dried roots are imported into this country chiefly from Germany; but we know no reason why the plant should not be cultivated in our physic gardens.

Qualities and Chemical Properties.—Gentian roots are long, and contain so large a proportion of water, that, when dried, they are much wrinkled. Externally they are brown, internally spongy, and of a deep yellow colour. The best roots are of a middling size, of a lively yellow colour, tough, and almost free from fibres. The older and larger roots are more porous; the younger and tender more compact. Neuman obtained from ℥xvj. of the root, by means of rectified spirit, ʒviiss. of resinous extract: and from water ʒix. of a gummy one. Sometimes the Thora *valdensis* of Ray, or the Aconitum *pardalianches* of Bauhin, is sold for the Gentian. It is known from the true Gentian by its paler colour externally, having longitudinal wrinkles; its texture is closer than that of Gentian, whitish within, and not bitter; but, when chewed, only mucilaginous. It is the Ranunculus *Thora*, Lin. Sp. Pl. 775. Gentian yields its virtues to ether, alcohol, and water. A singular circumstance is connected with the analysis of this root: M. Henry and M. Caventou being employed at the same time in this pursuit, without being aware of each other's proceedings, both discovered the substance termed *gentianine*, the principle on which the bitter and medicinal properties of the Gentian seem to depend; and so little did they differ in the results of their investigations, that they resolved to publish their labours together.

Preparation of Gentianine.—The powder of gentian is to be exposed to cold ether, which at the end of forty-eight hours furnishes a greenish tincture; this being filtered, poured into an open vessel, and exposed to heat, if the liquor be sufficiently concentrated upon cooling, settles into a yellowish crystalline mass, possessing a decided smell and taste of gentian. This mass is then to be treated with alcohol until it ceases to yield a citron colour. The washings are to be mixed, and exposed to a strong heat, and the yellow crystalline substance begins to re-appear, assuming at the close of the evaporating process a solid form, and being extremely bitter. Taken up again by weak alcohol, it is partially dissolved, a certain portion of oily matter remaining separate. This last spirituous solution, besides the bitter principle of the gentian, contains an acid substance, and the odorous principle also.

Upon evaporating this liquid to dryness, washing the residue in water, adding a little calcined and well washed magnesia, boiling and evaporating in a water bath, the greater part of the odorous matter of the gentian is driven off; the acidity is removed by the magnesia, and the bitter principle remains, partly free, and partly in a state of combination with magnesia, to which it imparts a beautiful yellow colour. Then upon boiling this magnesia with ether, the greater part of the bitter principle is obtained pure, and is insulated by evaporation. If it be wished to separate the bitter principle which remains in the magnesia, in a fixed state, and which could not be taken up by the ether, we may treat it with oxalic acid, in a quantity sufficient to produce slight acidity. This acid unites with the magnesia, and sets the bitter principle at liberty, which may be obtained in the manner already pointed out.

Properties of Gentianine.—This substance is yellow, and inodorous, possessing very strongly the aromatic bitter taste of the gentian, which is much increased by solution in an acid. It is highly soluble in ether and in alcohol, and separates by spontaneous evaporation in the form of very small yellow crystalline needles. It is much less soluble in cold water, which nevertheless it renders exceedingly bitter: in boiling water it is more readily dissolved. Diluted alkalis deepen its colour very much, and dissolve rather more of it than water will alone.

Action of Gentianine on the Animal and Human System.—M. Magendie has ascertained by experiment that this substance is not possessed of any poisonous qualities; several grains injected into the veins produced no effect. He himself swallowed two grains dissolved in alcohol, and was merely sensible of the extreme bitter taste, and a slight sensation of heat in the stomach.

Medicinal Employment.—The tincture seems to be the preferable form for administration; and it may be made in the followlng manner:—

Take of Alcohol at 24° . . . 1 ounce. Gentianine . . . 5 grains. Mix.

This may be substituted for the tincture of gentian, and employed in the same circumstances.

Syrup of Gentianine.—Take of Simple syrup . . 1 pound. Gentianine . . . 16 grains. Make a syrup.

This is one of the best bitters that can be employed in scrofulous affections.

Medical Properties and Uses.—The root of this plant has been used from time immemorial as a valuable tonic, and occupied the first place as a febrifuge before the discovery of the Cinchonas. In large doses it is somewhat aperient; but in smaller ones is found highly beneficial in dyspepsia, gout, hysteria, and jaundice; and in all those cases of debility in which tonics are administered, The infusion, as ordered by the London College, is the most elegant and proper mode of administering it, and forms an excellent medium for the exhibition of chalybeates, mineral acids, and neutral salts, with which it is often necessary to combine it. The following is the form:—

Take of, Gentian root, sliced, orange peel bruised, coriander seeds bruised, of each *a drachm.*
Fresh lemon peel *two drachms*, boiling water twelve *fluid ounces.*

Zingiber Officinale.

ZINGIBER OFFICINALE.—NARROW-LEAVED GINGER.

CLASS FIRST, MONANDRIA.—ORDER FIRST, MONOGYNIA.

NATURAL ORDER, SCITAMINEÆ.————THE GINGER TRIBE.

THE Ginger plant is a native of the East Indies, and of various parts of Asia, but is now extensively cultivated in the warmer parts of America, and in the West Indian Islands, from whence it is chiefly imported into Europe. It is a stove plant in England, flowering in September, and is said to have been raised here by Edward Lord Zouch, before the year 1605.

The root-stock is perennial, tuberous, fleshy, of a compressed roundish form, covered with an ash-coloured tegument, and sending off many stout fibres. The whole herb is smooth, and partakes of the hot, gratefully aromatic flavour of the root.

The rhizomata of all the Zingiberaceæ contain fæcula, which, however, is rendered unfit for ordinary food, and can only be used as a condiment, by the quantity of pungent, resinous, and aromatic oily matter it contains; in some, however, as Curcuma angustifolia, the spicy flavour is lessened, and from it an excellent kind of arrow-root is prepared.

The Greek name for ginger Ζιγγιβερ, is evidently derived from *Zungebeel*, its Persian appellation; and as it is indigenous at *Gingi* in China, it is supposed by some persons to have obtained its English name from that place, although *zingiber* and *ginger* are so much alike, that the one might be assumed to be a derivative of the other.

Ginger is a native of many eastern countries, but it is no where to be found, says Ainslie, of a finer quality than on the coast of Malabar. It is the *ischi* of the HORT. MALAB. (11. p. 21. t. 12,) and the *zingiber majus* of Rumphius (Herbarium Amboinense, pars 5. p. 156. t. 66. f. 1.)

This plant was introduced into New Spain by Francisco de Mendoza; from whence it was carried to the West Indian Islands, where it grows so plentifully, particularly in Jamaica, even in a wild state, as to induce a belief that it was indigenous to the soil. Since its introduction into Jamaica, it has become an article of considerable export; for which purpose it is generally cultivated. It is calculated that about one million pounds of it are annually consumed in Europe.

Ginger was known in England in Queen Elizabeth's reign, as Gerarde says, "Our men which sacked Domingo in the Indies digged vp ginger there in sundry places wilde." He adds, "Ginger groweth in Spaine, in the Canarie Islands, and the Azores. It is most impatient of these our northern regions, as myself haue found by proofs; for that there haue been brought vnto me at seuerall times, sundry plants thereof, fresh, greene, and full of iuice, as well from the West Indies, as from Barbarie, and other places; which haue sprouted and budded forth greene leaves in my garden in the heate of somer: but as soon as it hath bin but touched with the first sharp blast of winter, it hath presently perished, both blade and roote."

The plant appears to have been known in London about the year 1566-7, and was evidently introduced by the Dutch; as Gerarde states that about thirty years or more, before he published his account, (1597,) "an honest and expert apothecarie William Dries, to satisfy my desire, sent me from Antwerpe to London, the picture of ginger, because I was not ignorant that there had been oft ginger rootes brought green,

new, and full of iuice, from the Indies to Antwerpe: and further, that the same had budded and grown in the said Dries' garden."

The spice was common in Shakespeare's time, and, we believe, for centuries previously: in Twelfth Night, when Sir Toby says "Dost thou think, because thou art virtuous, there shall be no more cakes and ale?" the clown adds, "Yes, by Saint Anne; and ginger shall be hot i' the mouth too."

Experience shows that in situations where ginger is extensively grown, when the stalks are wholly withered, the roots are fit to take up, which is generally in January or February. Being picked and cleaned, they are gradually scalded in boiling water: after this they are spread, and exposed to the sun, till the whole is sufficiently cured; they are then divided into parcels of about one hundred weight each, and put into bags for the market: this is called *black ginger.* The *white* is never scalded, but every root is picked, washed, and scraped separately, and then dried in the sun and air. The bleached ginger, now so much esteemed, owes its whiteness to the action of chlorine; and although a more elegant, or rather a more delicate looking spice, it is far less aromatic than the ordinary white or black sorts.

To preserve this root in syrup, it is dug when the shoots do not exceed five or six inches in height. Being picked and washed, they are scalded till tender: then put into cold water, and scraped and peeled gradually: this operation may last three or four days, during which time the roots are kept in water, constantly renewed. They are then put into jars, and covered with a thin syrup, which after two or three days is shifted, and a richer put on: this is sometimes again removed, and even a fourth occasionally employed; but it seldom requires more than three syrups. The shifted syrups are diluted, and made into a pleasant liquor, called *cool drink.*

Ginger should be chosen in large roots, new, not easily broken, of a light brownish green colour, and of a hot, pungent, aromatic taste. That which is small, dark coloured, soft, or very fibrous, should be rejected. It is sometimes imported *green* from the East Indies. In freight, 16 cwt. of dry, and 20 cwt. of green ginger, are allowed to a ton.

Chemical Analysis. According to the experiments of M. Morin, ginger contains a resinous and subresinous matter; a dark bluish green essential oil, acetic acid, acetate of potash, osmazome, gum, some vegeto-animal matter, sulphur, starch, and lignin. In Jamaica ginger the starch is very abundant.

Qualities. The active matter of this root is yielded to alcohol, and in a great measure to water. It affords, by distillation, a small quantity of essential oil, upon which the flavour of ginger depends; while its pungency appears to reside in a resino-extractive matter, united with a great quantity of starch, which constitutes the chief bulk of this valuable condiment.

Medical Properties and Uses. This root, which is stimulant and carminative, is principally employed as an adjunct to other remedies, to augment their efficacy, or to obviate their griping effects; and is often administered, in substance or in infusion, for flatulent colic, tympanites, and some forms of dyspepsia. It also acts as a sialagogue, when chewed: tooth-ache is therefore sometimes relieved by it, and by many persons it is recommended in relaxations of the uvula, and tonsils, and in paralysis of the muscles of the tongue and fauces.

We are informed by Dr. Ainslie, that Europeans in India, of delicate constitutions, frequently use an infusion of ginger in place of common tea, and that the natives eat it freely in salads. In China green ginger is commonly seen in the vegetable markets, and is there eaten as a common potherb. The ginger tribe may be considered as almost exclusively tropical plants, flourishing only in hot countries, hardly any of them being found without the tropics.

Dose. From ten grains to a scruple, in powder.

Height; leaf stalks about three feet, flower stalks about a foot.

Goldfussia isophylla.

GOLDFUSSIA ISOPHYLLA.—EQUAL LEAVED GOLDFUSSIA.

Class XIV. DIDYNAMIA.—Order II. ANGIOSPERMIA.

Natural Order, ACANTHACEÆ.———THE JUSTICIA TRIBE.

Character of the Genus Goldfussia. Calyx five-parted, nearly equal. Corolla funnel-shaped; limb five-cleft, blunt, equal. Stamina included, didynamous, the smaller ones often very short and reflexed. Anthers nodding, the cells oblique, ovate, membranous, upon a glandular hooked connective. Stigma simple, subulate, crenate on one side. Capsule six-angled, bivalvular, the valves separable from the dissepiment, the cells having in the bottom two discoid seeds, subtended by retinacula.

Description of the Species, Goldfussia Isophylla. Stem erect, slender, much branched, angled, glabrous. Leaves opposite, equal, narrow, lanceolate, much attenuated at both extremities, distantly serrulate, entire towards the base, glabrous, dark green above, paler below. Flowers in terminal or axillary lax capitula, each subtended by a lanceolate glabrous bract. Calyx deeply but unequally four-five-cleft, segments unequal, lanceolate, blunt, whitish, but brown and pubescent on the sides and edges. Corolla lilac, veined, angled, funnel-shaped, curved towards the upper sides, undulate, sparingly glanduloso-pubescent, lower part of the tube white, hairy on its upper side within; limb four-lobed, lobes blunt, or marginate, the lower frequently bifid, the number of lobes of the calyx varying with those of the corolla. Stamens included, didynamous, without the rudiment of a fifth; filaments hairy; anthers suborbicular, attached by their backs, lobes bursting along the face. Pistil longer than the stamens, extending nearly to the division of the limb; stigma linear, narrow, extending a little way along the back of the style; style glabrous, swelling towards its extremity, and terminating in a cone; germen obovato-lanceolate, compressed, ciliated at its apex, opposite the edges of the dissepiment. Ovules few.

Popular and Geographical notice. The genus Goldfussia was established by Nees von Esenbeck, in his account of the East Indian Acanthaceæ, in Wallich's Plantæ Asiaticæ Rariores, and included fourteen species of Ruellia, in the Herbarium of the East India Company. In habit, this species exceedingly resembles that longer known one, Goldfussia anisophylla, but is at once distinguished by the uniformity of its opposite leaves: and it is a smaller plant. They are both natives of Sylhet.

Introduction; Where grown; Culture. I have only seen this species in cultivation in the nursery garden of Mr. Cunningham, Comely Bank, Edinburgh; where it thrives well, and flowers freely during a great part of the year, in the stove, without requiring any particular attention.

"Not long ago," says Harvey, in his reflections on a Flower Garden, "these curious productions of the spring, were coarse and mis-shapen roots. Had we opened the earth, and beheld them, in their seed, how uncouth and comtemptible had their appearance been!—but now, they are the boast of nature; the delight of the sons of men; finished patterns for enamelling and embroidery; outshining even the happiest strokes of the pencil. They are taught to bloom, but with a very inferior lustre, in the richest tapestries, and most magnificent silks. Art never attempts to equal their incomparable elegancies; but places all her merit in copying after these delicate originals. Even those, who glitter in silver, or whose clothing is of wrought gold; are desirous to borrow additional ornaments, from a sprig of jessamine, or a little assemblage of pinks.

What a fine idea may we form, from hence, of the resurrection of the just, and the state of their reanimated bodies! As the roots even of our choicest flowers, when deposited in the ground, are rude and ungraceful; but, when they spring up into blooming life, are most elegant and splendid: so, the flesh of a saint, when committed to the dust, alas! what is it? A heap of corruption; a mass of putrefying clay. But, when it obeys the great archangel's call, and starts into a new existence; what an astonishing change ensues! What a most ennobling improvement takes place!—That which was sown in weakness, is raised in all the vivacity of power. That which was sown in deformity, is raised in the bloom of celestial beauty. Exalted, refined, and glorified it will shine, 'as the brightness of the firmament,' when it darts the inimitable blue, through the fleeces—the snowy fleeces of some cleaving cloud.

There is an inspiration, observes the author of the "Flora Domestica," in the works of nature which gives a more than usual power even to talents of a common order, when treating of them; and although we take greater delight in the rose, the violet, or the lily, we also love to pluck from the hedge-side the hawthorn and the ragged-robin. Wordsworth very naturally describes the inclination we have to gather wild flowers:—

———"We paused, one now,
And now the other, to point out, perchance
To pluck, some flower or water-weed, too fair
Either to be divided from the place
On which it grew, or to be left alone
To its own beauty."

On some occasions it has been necessary not only to cast aside the hedge-flowers of poetry, but also to pass by the roses. Even Chaucer, so copious are his praises of some of his favourite flowers, we could not venture to quote so insatiably as inclination would lead us. Most of our best poets have touched upon the beauty of flowers, more or less:—Chaucer, Spenser, Milton, and Shakspeare, the great poetic luminaries of our island,

> ——————" the sages
> Who have left streaks of light athwart their ages,"

have all dwelt largely on them. Ben Jonson, too, and Beaumont and Fletcher, Drayton, Dryden, Thomson, Cowper, &c. In our own times, Wordsworth, Byron, Moore, Hunt, Keats, Scott, Montgomery, Cornwall, and Clare, have revelled in them like bees. It has been remarked as a defect in Pope, that he says little or nothing, in his poems, of the works of nature; and it does appear an extraordinary thing in a poet, so tremblingly alive to beauty in every shape as poets naturally are, and necessarily must be. Pope was a poet for the drawing-room; but there are few even among ungifted individuals totally insensible to the soothing influence of flowers and trees:—

> " The enamelled earth, that from her verdant breast
> Lavished spontaneously ambrosial flowers,
> The very sight of which can soothe to rest
> A thousand cares, and charm our sweetest hours."
>
> GARCILASSO.

> " This lucid fount, whose murmurs fill the mind,
> The verdant forests waving with the wind,
> The odours wafted from the mead, the flowers
> In which the wild bee sits and sings for hours;
> These might the moodiest misanthrope employ,
> Make sound the sick, and turn distress to joy."———Ibid.

If flowers have so much beauty in common eyes, what must they be in the eye of a poet, which gives new charms to every object on which it gazes! A poet sees in a flower not only its form and colour, and the shadowing of its verdant foliage—his eye rests upon the dew-drop that trembles on the leaf; a gleam of sunshine darts across, and gives it the sparkling brilliancy of a diamond. He sees the bee hovering around, buzzing its joyous anticipation of the honey he shall draw from its very heart; and the delicate butterfly suspended as it were by magic from its silken petals. His imagination, too, brings around it a world of associations, adding beauty and interest to the object actually before his eye. Thus flowers have been described in all their seasons, and in every variety of situation and circumstance, budding forth in timid beauty in the early spring, glowing in the maturity of summer, lingering in the chilling breath of autumn, and some few as daring even the frosts of winter. They have been represented as sinking with drought, weighed down with rain, and fading in the noon-day sun; as opening, fresh with dew, to the beauty of the morning, and closing with the day; as enlarged and improved by the hand of art; as dying, or growing rank and wild, under the influence of neglect.

How beautifully the poet says, in praying for the inspiration of poesy,

> ——————" 'twill bring me to the fair
> Visions of all places: a bowery nook
> Will be elysium—an eternal book
> Whence I may copy many a lovely saying
> About the leaves and flowers; about the playing
> Of nymphs in woods and fountains; and the shade
> Keeping a silence round a sleeping maid;
> And many a verse from so strange influence,
> That we must ever wonder how and whence
> It came!"———KEATS.

The spring is, in particular, a subject delightful to the poet. He loves to celebrate the cheerful season when

> "The palms put forth her gems, and every tree
> Now swaggers in her leafy gallantry."———HERRICK.

> " As spring, attended by the laughing hours,
> After long storm is wont to re-appear,
> When the mild zephyr, breathing through the bowers,
> Bring back its former beauty to the year,
> And goes enamelling the banks with flowers,
> Blue, white, and red, all eyes and hearts to cheer."———WIFFEN'S GARCILASSO.

Guaiacum officinale

GUAIACUM OFFICINALE.——OFFICINAL GUAIACUM, OR LIGNUM VITÆ.

Class X. DECANDRIA.—Order I. MONOGYNIA.

Natural Order, ZYGOPHYLLEÆ.——THE BEAN-CAPER TRIBE.

This tree, the wood of which is well known in England under the name of Brazil wood, or *Lignum vitæ*, is a native of Jamaica, Hispaniola, and the warmer parts of America. It has been long in use, and appears from the MSS. of Sir Hans Sloane, in the British Museum, to have been first cultivated in this country by the Duchess of Beaufort in 1699. It is said to flower from July to September.

The tree rises to the height of thirty or forty feet, and is near a foot in the diameter of its trunk, with numerous divaricated knotty branches, leafy at the ends. The bark is very smooth, variegated with green and white; that of the branches being uniformly ash-coloured, striated, and marked with fissures. The wood is hard and ponderous, dark, olive-brown within, whitish towards the bark, and has a peculiar acid aromatic scent. The leaves are opposite, abruptly pinnate, consisting of two or three pairs of ob-ovate or roundish, obtuse, entire, smooth, dark-green, rigid, leaflets, various in size, with several radiating veins, and nearly sessile. The flowers are pale blue, on simple, axillary, clustered stalks, shorter than the leaves. The calyx consists of five ovate-oblong, obtuse, concave, spreading deciduous leaves; the two outer ones rather the smallest. The petals are five, roundish, ob-ovate, concave, spreading, with short linear claws, inserted into the receptacle. The stamens are ten, awl-shaped, erect and villous, with oblong incumbent, cloven anthers; the germen is obcordate, with a short awl-shaped style. The capsule is somewhat turbinate, on a short stalk, smooth, succulent, pale, ferruginous or yellow, with from two to five rounded, slightly bordered angles, and as many cells bursting at the angles; but two or three of the cells are frequently abortive. The seeds are solitary, pendulous, ovate, convex on one side, angular at the other, the albumen cartilaginous and chinky, the embryo nearly straight with thickish cotyledons.

Guaiacum is a barbarous name, derived from the Spanish one *Guaiac* or *Guayacan*, which itself originated from *Hoaxacan*, the Mexican appellation of the plant.

Qualities and Chemical Properties.—The wood of this tree, and the peculiar matter which it yields, are the parts medicinally employed. The wood is hard and heavy, and is much used for ship-blocks and for toys. It is nearly inodorous, but has a warm, somewhat bitter taste; and its virtues depend upon the resin-like substance which it contains. It is rasped for medical use, but we are inclined to think that it yields little of its powers to decoction.

The Guaiacine exudes spontaneously from the trunk and branches of the tree; and concreting, forms tears of a semi-pellucid and pure nature. By making incisions in the month of May, greater quantities flow, and after becoming hard, by exposure to the sun and air, it is collected and packed in casks for exportation. Another method for obtaining it, is by sawing the trunks and large limbs into billets, about three feet long: an auger hole is then bored lengthways in each, and the other end of the billet being put in a fire, the melted matter flows into calabashes, placed purposely to receive it. By boiling chips, or raspings of the wood in water, with common salt, the Guaiac swims at the top, and may be skimmed off. Sometimes it is adulterated with common resin and the Machineel gum. The former is detected by its smell, if heat be applied, and the latter "by adding to the alcoholic solution a few drops of sweet spirits of nitre, and diluting with water; the guaiac is precipitated, but the adulteration floats in white striæ."

Guaiacum was considered by chemists as a resin, till Mr. Hatchett observed, that when treated with nitric acid it yielded products very different from those of resinous bodies. This induced Brande to examine its chemical properties in detail. To his valuable paper we are indebted for almost all the accurate information which we possess respecting its chemical nature.

"*Guaiacum* is a solid substance, resembling a resin in appearance. Its colour differs considerably, being partly brownish, partly reddish, and partly greenish; and it always becomes green when left exposed to the light in the open air. It has a certain degree of transparency, and breaks with a vitreous fracture. When pounded it emits a pleasant balsamic smell; but has scarcely any taste, although when swallowed it excites a burning sensation in the throat. When heated it melts, and diffuses at the same time a pretty strong fragrant odour. Its specific gravity is 1·2289.

"When *guaiacum* is digested in *water* a portion of it is dissolved, the water acquiring a greenish-brown colour and a sweetish taste. The liquid, when evaporated, leaves a brown substance, which possesses the properties of *extractive*; being soluble in hot water and alcohol, but scarcely in sulphuric ether, and forming precipitates with muriates of alumina, tin, and silver. This extractive amounts to about nine parts in the hundred of Guaiacum.

"*Alcohol* dissolves guaiacum with facility, and forms a deep brown-coloured solution. Water renders this solution milky by separating the resin. Muriatic acid throws down the guaiacum of an ash-grey, and sulphuric acid of a pale-green colour. Acetic acid, and the alkalies occasion no precipitate. Liquid chlorine throws it down of a fine pale-blue, which does not change when dried. Diluted nitric acid occasions no change at first; but after some hours the liquid becomes green, then blue, and at last brown, and at that period a brown coloured precipitate falls down. If water be mixed with the liquid when it has assumed a green or a blue-colour, green and blue precipitates may be respectively obtained.

"*Sulphuric ether* does not act so powerfully on guaiacum as alcohol. The solution obtained by means of it, exhibits the same properties when treated with re-agents as that in alcohol.

"The *alkaline solutions*, both pure and in the state of carbonates, dissolve guaiacum with facility. Two ounces of a saturated solution of potash dissolved about 65 grains of guaiacum; the same quantity of ammonia only 25 grains; or guaiacum dissolves in about 15 parts of potash, and 68 parts of ammonia. Nitric acid threw down from these solutions a brown precipitate, similar to what is obtained when the alcoholic solution is mixed with the same acid. Muriatic acid, and diluted sulphuric acid, throw down a flesh-coloured curdy precipitate, which in its properties approaches the nature of extractive.

"Most of the *acids* act upon guaiacum with considerable energy. *Sulphuric acid* dissolves it, and forms a deep-red liquid, which deposits while fresh a lilac-coloured precipitate when mixed with water. When heat is applied the guaiacum is charred.

"*Nitric acid* dissolves guaiacum completely without the assistance of heat, and with a strong effervescence. When the solution is evaporated, it yields a very large quantity of oxalic acid. No artificial tannin appears to be formed, but rather a substance possessing the properties of extractive.

"*Diluted nitric acid* converts guaiacum into a brown substance, similar to the precipitate obtained by nitric acid from the alcholic solution of guaiacum. This brown matter possesses the properties of a resin.

"*Muriatic acid* acts but slightly, as the guaiacum soon melts into a blackish mass, which is not acted upon.

"When guaiacum is distilled, 100 parts of it yielded to Mr. Brande the following products:

Acidulous water	5·5
Thick brown oil	24·5
Thin empyreumatic oil	30·0
Charcoal	30·5
Gases, consisting of carbonic acid, and carburetted hydrogen	9·0
Loss	0·5
	100·0

MEDICAL PROPERTIES AND USES.—The Guaiacum wood was first employed by the natives of St. Domingo. The Spaniards soon acquired a knowledge of its virtues, and introduced it into Spain as early as the year 1501. The fame of this new remedy was diffused with such celerity through the other parts of Europe, that according to the testimony of Nicholas Poll, more than three thousand diseased persons had derived permanent benefits from the use of it, before the year 1517.

A decoction of Guaiacum excites a grateful sensation of warmth in the stomach; it gives a sense of dryness to the mouth, and creates a thirst; it also increases the natural temperature of the skin, and renders the pulse more frequent. If the patient drink the decoction warm, and lie in bed, it generally proves moderately sudorific; and this effect may be heightened as much as we please, by employing the hot bath, the vapour bath, antimonials combined with opium, or Dover's powder. When the decoction has been continued during ten or twelve days, in the quantity of four pints each day, the patient often complains of heart-burn.

To sum up the virtues of Guaiac, it may be said that it is a stimulating medicine; proving diaphoretic in a dose of a scruple, or half a drachm; and purgative, in large doses; It is frequently employed in chronic rheumatism, to excite perspiration: or in smaller doses still, to keep up a gentle determination to the skin. Combined with opium, its sudorific effects are increased; and the decoction of the wood is said to increase the power of senna, and to prevent its griping. It is either given in substance in the form of a bolus, or diffused in water by the medium of mucilage. The volatile tincture is more highly stimulating than the simple, and is more generally employed.

OFF. PREP. Decoctum Sarsaparillæ comp. *L.D.*
Decoctum Guaiaci comp. *E.*
Mistura Guaiaci. *L.*
Tinctura Guaiaci. *L.E.D.*
Tinctura Guaiaci Ammoniata. *L.E.D.*
Pulvis Aloes comp. *L.D.*
Pilulæ Hydrargyri Sub-muriatis comp. *L.E.*

Viola tricolor.

VIOLA TRICOLOR.—THE HEART'S EASE.

Class V. PENTANDRIA.——Order I. MONOGYNIA.

Natural Order, VIOLACEÆ.—THE VIOLET TRIBE.

Root somewhat fusi-form; stems branched, diffuse; lower leaves ovate-cordate, deeply crenate; stipulas runcinately-pinnatifid, with the middle lobe crenated; petals incumbent, with short claws; spur thick, obtuse, not stretched out; nectaries short; seeds oblong-ovate. Native in cultivated fields and gardens throughout Europe, Siberia, and North America; plentiful in Britain. Bracteas very small, scarcely evident. Petals very variable in colour and size. This is a very variable species, or more probably a heterogeneous mass of species collected.

The *Heart's ease, Viola tricolor*, was once esteemed efficacious in the cure of cutaneous disorders. This plant, when bruised, smells like peach-kernels; and hence, probably, it contains prussic acid: the same odour is also communicated to water in which it has been distilled.

We transcribe a very agreeable passage on the Heart's-ease, from the "Flora Domestica." This beautiful flower is a native of Siberia, Japan, and many parts of Europe. Mr. Brooke, speaking of the forests in Sweden, says, "innumerable flowers of the liveliest colours peeped out between the masses of brown rock, enamelled with various kinds of lichens; and huge fragments were variegated with beds of the Pansy, or Heart's-ease, displaying its different hues, relieved by the dark-green of the sweeping pines."[a] It is a general favourite, as might be supposed from the infinity of provincial names which have been bestowed upon it from its beautiful colours:—Love in Idleness; Live in Idleness; Call me to you; Three faces under a Hood; Herb Trinity; Pink of my John; Flower of Jove; and Flamy, because its colours are seen in the flame of wood.

It is a species of violet, and is frequently called the Pansy-violet, or Pansy, a corruption of the French name *pensées*.

The smaller varieties are scentless, but the larger ones have an agreeable odour. Drayton celebrates its perfume by the flowers with which he compares it in this respect; but then, to be sure, his is an Elysian Heart's-ease:

"The Pansy and the violet, here,
As seeming to descend
Both from one root, a very pair,
For sweetness do contend.

"And pointing to a pink to tell
Which bears it, it is loth
To judge it; but replies, for smell
That it excels them both.

"Wherewith displeased they hang their heads,
So angry soon they grow,
And from their odoriferous beds
Their sweets at it they throw."

The Heart's-ease has been lauded by many of our poets; it has been immortalized even by Shakspeare himself; but no one has been so warm and constant in its praise as Mr. Hunt, who has mentioned it in many of his works. In the Feast of the Poets, he entwines it with the Vine and the Bay, for the wreath bestowed by Apollo upon Mr. T. Moore. In the notes to that little volume, he again speaks of this flower, and I do not know that I can do better than steal a few of its pages to adorn this.

"It is pleasant to light upon an universal favourite, whose merits answer one's expectation. We know little or nothing of the common flowers among the ancients; but as violets in general have their due mention among the poets that have come down to us, it is to be concluded that the Heart's-ease could not miss its particular admiration,—if indeed it existed among them in its perfection. The modern Latin name for it is *flos Jovis*, or Jove's flower,—an appellation rather too worshipful for its little sparkling delicacy, and more suitable to the greatness of an hydrangea or to the diadems of a rhododendron.

'Quæque per irriguas quærenda Sisymbria valles
Crescunt, nectendis cum myrto nata coronis;
Flosque Jovis varius, folii tricoloris, et ipsi
Par violæ, nulloque tamen spectatus odore.'

'With all the beauties in the vallies bred,
Wild mint, that's born with myrtle crowns to wed,
And Jove's own flower, that shares the violet's pride,
Its want of scent with triple charm supplied.'

Rapini Hortorum, lib. i.

[a] Brooke's Sweden, p. 54.

"The name given it by the Italians is *flammola*, the little flame;—at least, this is an appellation with which I have met, and it is quite in the taste of that ardent people. The French are perfectly *aimable* with theirs:—they call it *pensée*, a thought, from which comes our word Pansy.

"There's rosemary," says poor Ophelia; "that's for remembrance;—pray you, love, remember,—and there is pansies,—that's for thoughts." Drayton, in his world of luxuries, the Muse's Elysium, where he fairly stifles you with sweets, has given, under this name of it, a very brilliant image of its effect in a wreath of flowers;—the nymph says,

'Here damask roses, white and red,
Out of my lap first take I,
Which still shall run along the thread;
My chiefest flow'r this make I.

Amongst these roses in a row,
Next place I pinks in plenty,
These double-daisies then for show;
And will not this be dainty?

The pretty pansy then I'll tye,
Like stones some chain enchasing;
The next to them, their near ally,
The purple violet placing."——NYMPHAL, 5th.

"Milton, in his fine way, gives us a picture in a word,

——"the pansy *freak'd* with jet."

"Another of its names is Love-in-idleness, under which it has been again celebrated by Shakspear, to whom we must always return, for any thing and for every thing;—his fairies make potent use of it in the Midsummer-Night's Dream. The whole passage is full of such exquisite fancies, mixed with such noble expressions and fine suggestions of sentiment, that I will indulge myself, and lay it before the reader at once, that he may not interrupt himself in his chair:—

OBERON. My gentle Puck, come hither:—thou rememberest,
Since once I sat upon a promontory,
And heard a mermaid, on a dolphin's back,
Uttering such dulcet and harmonious breath,
That the rude sea grew civil at her song,
And certain stars shot madly from their spheres
To hear the sea maid's music?
PUCK. I remember.
OBERON. That very time I saw (but thou couldst not,)
Flying betwixt the cold earth and the moon,
Cupid all arm'd:—a certain aim he took
At a fair vestal, throned by the west,
And loosed his love-shaft smartly from his bow,
As it should pierce a hundred thousand hearts:
But I might see young Cupid's fiery shaft
Quench'd in the chaste beams of the watery moon;
And the imperial votaress pass'd on,
In maiden meditation, fancy free.
Yet mark'd I where the bolt of Cupid fell:
It fell upon a little western flower,—
Before, milk-white,—now purple with love's wound,—
And maidens call it Love in-idleness.
Fetch me that flower,—the herb I show'd thee once:
The juice of it, on sleeping eyelids laid,
Will make or man or woman madly dote
Upon the next live creature that it sees.
Fetch me that herb; and be thou here again
Ere the leviathan can swim a league.
PUCK. I'll put a girdle round about the earth
In forty minutes. Act II. Sc. 2."

It has already been observed, that only the larger kinds have any scent; thus many persons judging from the smaller, have thought them all scentless. The difference of opinion on this point may be seen in several of the above quotations.

Dryden, in his translation of a passage in Virgil's Pastorals where the poet speaks of sweet herbs in general, introduces the Pansy; but expressly to distinguish it from a fragrant plant:

"Pansies to please the sight, and cassia sweet to smell."

There is a species of Heart's-ease called the Great Flowering—a native of Switzerland, Dauphiny, Silesia, and the Pyrenees—which is very similar to the common kind, but that it has more yellow in it; and another, called the Yellow Mountain Heart's-ease, of British growth, which, notwithstanding the name it bears, is as often purple and yellow, or even purple alone, as all yellow.

It would be an impertinence to attempt to describe the Heart's-ease; therefore let us proceed at once to the treatment of this little favourite. The roots may be purchased so cheaply, and the flowers of these will be so much finer than any that are sown at home, that this will be much the best way of procuring them. At a nursery, or at Covent-Garden flower-market, six or more may be had for a shilling, all of them covered with flowers and buds. They love the sun, but must be liberally watered every evening to replenish the moisture, which they will consume.

Phillips observes that the most brilliant purples of the artist appear dull when compared to that of the pansy; our richest satins and velvets coarse and unsightly by a comparison of texture; and, as to delicacy of shading, it is scarcely surpassed by the bow of Iris itself.

Pansies are among the flowery gifts of the simple shepherds to the metamorphosed nymph Sabrina.

The shepherds at their festivals
Carol her good deeds loud in rustic lays,
And throw sweet garland wreaths into her stream,
Of pansies, pinks, and gaudy daffodils.——COMUS.

In the language of flowers the heart's-ease signifies *think of me.*

Veratrum album.

VERATRUM ALBUM.——THE WHITE HELLEBORE.

Class XXIII. POLYGAMIA.—Order I. MONŒCIA.

Natural Order, MELANTHACEÆ.——THE COLCHICUM TRIBE.

White Hellebore is a native of the mountainous districts in most parts of Europe, from Norway to Greece, but not of Great Britain. This stately plant, accompanied by the Gentiana *lutea*, makes a magnificent appearance in rich pastures on the Alps of Switzerland, where they both grow in the greatest abundance. It is a hardy perennial, in our gardens, where it has been cultivated from time immemorial, flowering from June to August.

The root is tuberous, fleshy, brownish externally, and furnished at the base with long, simple, white, cylindrical fibres. The stem is from two to four feet high, stout, erect, simple, hairy, and terminating in a large branching downy panicle, with alternate spikelets, of innumerable greenish white flowers, having little or no scent. The leaves are large, elliptical and entire, surrounding the stem at the base, plaited longitudinally, smooth, of a fine green colour, the uppermost becoming oblong lanceolate bracteas. The perianth consists of six sub-petaloid pieces, of a pale green colour, which are oblong, lanceolate, veined, spreading, of a coriaceous texture, and accompanied by an elliptical, lanceolate, downy bractea. The filaments are six, closely surrounding the germen, shorter than the corolla, diverging, and terminated by quadrangular anthers; the germens are three in each hermaphrodite flower, oblong, with spreading styles, which are terminated with bifid stigmas. The capsules are three, oblong, compressed, 2-celled, bursting at the inner edge, and containing many oblong, compressed, imbricated seeds, winged at each end.

The Green Veratrum (V. *viride*) a North American species, greatly resembles in its foliage and habit the White Hellebore, but the panicle is larger and greener, its branches longer and more cylindrical, spiked, not racemose, each flower being nearly or quite sessile. The sepals are also broader; their margins being thickened and mealy about the base. The Veratrum *nigrum*, or Black Hellebore, agrees with the Veratrum *album* in habit and leaves, but is somewhat taller, and is remarkable for the very dark purplish-brown, almost black hue of its flowers, which exhale a faint cadaverous odour. It is a native of dry mountainous situations in Siberia, Hungary, Austria and Greece; flowering in July.

Qualities and Chemical Properties.—When recent, this root has a disagreeable odour: as met with in the shops, scarcely any. To the taste it is acrid, nauseous, and bitter, excoriating the mouth and fauces; while the powder, if applied to wounds, produces effects on the animal economy of a highly deleterious nature; as may be seen by referring to its poisonous effects. If applied to the membrane lining the nose, it proves a violent sternutatory.

On analysis, the root of the Veratrum *album* yielded to M.M. Pelletier and Caventou, 1. A fatty matter composed of oil, adipocire, and an acid similar to the sebacic, but uncrystallizable; 2. Yellow extractive colouring matter; 3. Acid gallate of *veratrine;* 4. Gum; 5. Fecula; 6. Woody fibre; the ashes containing carbonates of potass and lime, sulphate of lime and silica.

It is on the *Veratrine* that its poisonous effects depend; and these successful chemists, amongst many other brilliant discoveries, have remarked that almost all the individuals of this family of plants exert a common action over animals, owing to this principle pervading them. They first analysed the seeds of the Veratrum *Sabadilla;* isolating the *veratrine,* in which they recognised all the alkaline characters. They ultimately discovered it in the root of Colchicum *autumnale,* and in that of our plant.

Etmuller, in the preface to his work on Surgery, states that this root, when applied to the abdomen, produces violent vomiting. Van Helmont also says, that a royal prince died in three hours after taking a scruple of this poison, which induced convulsions.

Medical Properties and Uses.—Like most other violent remedies from the vegetable kingdom, white hellebore was often employed by the ancients in formidable and obstinate diseases, as mania, melancholia, dropsies, epilepsy, canine madness, elephantiasis, chronic eruptions, &c. They considered it safer when it excited vomiting; Hippocrates wishing this to be its first effect: and experiments on animals prove that they were perfectly correct: as may be seen by referring to Ex. No. 1 and 2 in Orfila's Toxicology. Women and children, the aged and debilitated, and those affected with diseases of the chest, were considered as unfit objects for its administration; and as it is asserted to be capable of affording relief, when no sensible evacuation was produced, its violence was generally moderated by other combinations.

At one time, and that very lately, it was believed by many that the V. *album* was the active ingredient of that celebrated medicine for gout, the *Eau Médicinale.* Although this opinion appears fallacious, it led to its employment in that disease conjoined with opium, and we recollect many years ago to have seen it

administered with considerable success; which will not appear so very remarkable to those who are aware that its active principle, veratrine, is, as already observed, a constituent of the meadow saffron. White hellebore, as an internal medicine, is again fallen into disuse. It is however still employed externally as a local stimulant; and veratrine has been much lauded in the treatment of *tic douloureux* and various other anomalous painful affections of a chronic kind.

For internal administration the dose must not exceed two grains; and when used as a snuff, one pinch may be used every night, composed of four grains to about half a drachm of starch.

OFF. PREP.—Decoctum Veratri. *L.*
Tinctura Veratri albi. *E.*
Unguentum Veratri. *L.*
Unguentum Sulphuris comp. *L.*

Poets have taken pleasure in painting gardens in all the brilliancy of imagination. See the garden of Alcinous, in Homer's Odyssey; those of Morgana, Alcina, and Armida, in the Italian poets: the gardens fair

"Of Hesperus and his daughters three
Who sing about the golden tree:"

and Proserpina's garden, and the Bower of Bliss in Spenser's Fairie Queene. The very mention of their names seems to embower one in leaves and blossoms.

It is a matter of some taste to arrange a bouquet of flowers judiciously; even in language, we have a finer idea of colours, when such are placed together as look well together in substance. Do we read of white, purple, red, and yellow flowers, they do not present to us so exquisite a picture, as if we read of yellow and purple, white and red. Their arrangement has been happily touched upon by some of our poets:

——————"Th' Azores send
Their jessamine; her jessamine, remote
Caffraria: foreigners from many lands,
They form one social shade, as if convened
By magic summons of th' Orphean lyre.
Yet just arrangement, rarely brought to pass
But by a master's hand, disposing well
The gay diversities of leaf and flower,
Must lend its aid t' illustrate all their charms,
And dress the regular, yet various scene.
Plant behind plant aspiring, in the van
The dwarfish; in the rear retired, but still
Sublime above the rest, the statelier stand.

Cowper.

Drayton runs riot on the subject: a nymph in his Muse's Elysium says,

"Here damask-roses, white and red,
Out of my lap first take I,
Which still shall run along the thread;
My chiefest flower this make I.
Amongst these roses in a row,
Next place I pinks in plenty,
These double-daisies then for show,
And will not this be dainty?
The pretty pansy then I'll tye
Like stones some chain inchasing;
And next to them, their near ally,
The purple violet placing.
The curious choice clove July-flower,
Whose kinds, hight the carnation,
For sweetness of most sovereign power
Shall help my wreath to fashion;
Whose sundry colours of one kind,
First from one root derived,
Them in their several suits I'll bind,
My garland so contrived:
A course of cowslips then I'll stick,
And here and there (though sparely)
The pleasant primrose down I'll prick,
Like pearls which will show rarely;
Then with these marygolds I'll make
My garland somewhat swelling,
These honeysuckles then I'll take,
Whose sweets shall help their smelling.
The lily and the fleur-de-lis,
For colour much contending,
For that I them do only prize,
They are but poor in scenting;
The daffodil most dainty is
To match with these in meetness;
The columbine compared to this,
All much alike for sweetness:
These in their natures only are
Fit to emboss the border,
Therefore I'll take especial care
To place them in their order:
Sweet-williams, campions, sops-in-wine,
One by another neatly;
Thus have I made this wreath of mine,
And finished it featly."

Drayton.

"So did the maidens with their various flowers
Deck up their windows and make neat their bowers:
Using such cunning as they did dispose
The ruddy peony with the lighter rose,
The monkshood with the bugloss, and entwine
The white, the blue, the flesh-like columbine
With pinks, sweet-williams; that far off the eye
Could not the manner of their mixtures spy."

W. BROWNE.*

* *Flora Domestica.*

Hyoscyamas niger.

HYOSCYAMUS NIGER.—COMMON HENBANE.

Class V. PENTANDRIA.—Order I. MONOGYNIA.

Natural Order, SOLANEÆ.——THE NIGHT-SHADE TRIBE.

Common Henbane is an annual plant, growing naturally in many parts of our island, on waste grounds, and particularly on dry calcareous soils, on the sea coast of Essex and Kent; flowering in July. The figure was drawn from a specimen found on Barnes Common, the only locality in the immediate vicinity of the metropolis with which we are now acquainted: we have seen it at Hampstead, but it has been for several years extirpated, the London herb-shops being chiefly supplied with it from Birch, near Colchester, and the Isle of Thanet, where it grows in great abundance. Mr. Greville, in his "Flora Edinensis," on the authority of Mr. Neill, mentions it as occurring at Lochend, and on the south-east end of the debris of Salisbury Craigs.

The root is fusiform, long, thick, wrinkled, brown externally, and white within. The stem rises to the height of two feet; is erect, branched, woody, cylindrical, somewhat viscid, and covered with a hairy down. The leaves surrounding the stalk at their base, stand irregularly, or in alternate order; are large, clammy like the stalks, soft, woolly, pointed at the ends, very deeply sinuated at the edges, and of a glaucous green colour. The flowers are numerous, mostly sessile, of a straw-yellow colour, reticulated with dark purple veins; and either emerge singly from the axillæ of the leaves, or form long drooping, unilateral spikes, at the extremity of the stem and branches. A variety without these veins is mentioned by Sir J. E. Smith, as having been found by the Rev. J. Forby at Fincham, in Norfolk. The corolla is gamopetalous, funnel-shaped, and divided into five obtuse segments. The calyx is tubular, 5-cleft, and remains till the fruit is ripe. The filaments are inserted into the tube of the corolla, downy at the base, subulated, inclined inwards, and supporting heart-shaped anthers of a deep purple colour. The germen is roundish; style filiform, the length of the stamens, with a blunt round stigma. The capsule is ovate, filling the body of the calyx; bilocular, and opening transversely by a convex lid. It contains numerous, small, obovate, unequal brown seeds. The whole plant is covered with soft, unctuous hairs.

The systematic name, *Hyoscyamus*, is of Greek origin, and is derived from ὑς, ὑος, *hog*, and κυαμος, a bean, Hogs-Bean: because the exterior of the capsule has some resemblance to the shape of a bean, and the herb may be eaten by swine with impunity: whereas to most other animals it proves poisonous. Ælian, however, relates that if this plant be devoured by pigs, its effects are extremely prejudicial, occasioning convulsions, and even death. The trivial name *niger* (black) is expressive of the colour of the seeds, and serves to distinguish the present species from another kind of European Henbane with white seeds, and which for that reason is termed Hyoscyamus *albus*. The English name Henbane, seems to be derived from the effects of the seeds on fowls; *Bana*, being the Saxon word for murdering, slaying, &c.; thus the plant is the destroyer, or *bane*, of hens. Matthiolus, in his Commentaries on Dioscorides, asserts that he was a witness to the effects of the seeds on children, and that birds, especially of the gallinaceous tribe, and fishes, die soon after eating them.

Qualities and Chemical Properties.—The whole plant has a strong fetid narcotic smell, and abounds in a clammy juice of a similar odour. The root has a sweetish taste, which has caused it to be sometimes mistaken for that of the parsnip. Exsiccation is said to destroy these sensible qualities. Its virtues are completely extracted by diluted alcohol. The watery infusion is of a very pale yellow colour, and insipid; and has the narcotic odour of the plant. It is not altered by the acids; the alkalies change the colour to a deep greenish yellow, which, on the addition of an acid, disappears, and a brownish flocculent precipitate is produced. Copious white precipitates are produced by the solution of subacetate of lead; and black ones by nitrate of silver. Sulphate of iron strikes with it a pale olive colour, and a dark precipitate is slowly formed. Nitrate of mercury also produces a large precipitate; the watery and alcoholic solutions do not disturb each other. Brandes has succeeded in extracting from the *seeds* an alkaline principle, termed *hyoscyamine*, on which its active properties depend; its vapour is exceedingly prejudicial.

Poisonous Effects and Morbid Appearances.—Henbane, when administered in too large a dose, becomes a very dangerous poison. The effects produced by this plant, besides madness, are symptoms of intoxication, stupor, remarkable dilatation of the pupil, apoplexy, and convulsions; terminating in death. On dissection, the internal surface of the stomach is often found inflamed, and covered with gangrenous spots; the brain also exhibits appearances denoting great vascular excitement.

"Wepfer relates, that several monks made a repast on the roots of wild endive, among which were mixed by mistake two roots of henbane. In a few hours some experienced vertigo; others a burning of the tongue, lips, and throat. Severe pains were also felt in the iliac region, and in all the joints. The intellectual faculties and organs of vision were perverted, and they gave themselves up to actions that were mad and ridiculous. They however recovered. In other cases a haggard countenance, dilatation of the pupils,

difficulty of breathing, small and intermittent pulse, loss of speech, trismus, and temporary loss of intellect, have been the principal symptoms; while the extremities have been observed to be cold, and nearly paralyzed. An enema, prepared from a decoction of henbane, caused a numbness and loss of motion of the upper and lower extremities, propensity to sleep, and difficulty of hearing."—*Orfila*, vol. II. p. 135 to 139. *Foderé*, vol. IV. p. 25.

"Its effects in large doses have been well described by M. Cloquet, as they occurred in two soldiers who ate the young shoots dressed with olive oil. They presently became giddy and stupid, lost their speech and had a dull haggard look. The pupils were excessively dilated, and the eyes so insensible that the eye-lids did not wink when the cornea was touched. The pulse was small and intermitting, the breathing difficult, the jaw locked, and the mouth distorted by *risus sardonicus*. Sensibility was extinct, the limbs were cold and palsied, the arms convulsed, and there was that singular union of delirium and coma which is usually termed *typhomania*. One of the men soon vomited freely under the influence of emetics, and in a short time got quite well. The other vomited little. As the palsy and somnolency abated, the delirium became extravagant, and the patient quite unmanageable till the evening of the subsequent day, when the operation of brisk purgatives restored him to his senses. In two days both were fit for duty." *Christison from Corvisart.*

"Wilmer gives an interesting account of six persons poisoned by eating the roots of henbane in mistake for parsnips. Several were delirious and danced about like maniacs; one appeared as if he had got drunk, and a woman became profoundly and irrecoverably comatose. Emetics could not be introduced into the stomach, external stimuli of every kind failed to rouse her, and she expired next morning at six." *Ib.*

"Dr. Patouillat, of Toucy, in France, saw nine persons who were poisoned with this root. Some were speechless and convulsive; others occasionally howled. In all there was a protrusion of the eyes, contortion of the mouth, and delirium. Emetics relieved them, but their sight was for some days affected, and all objects appeared red, like scarlet."—*Phil. Transact.* vol. XL. p. 416.

Hyoscyamus *aureus*, *physaloides*, and *Scopolia*, are all deemed to be poisonous: and the following account is illustrative of the effects of H. *albus*.

"In April 1792, a large quantity was carried by mistake on board the French corvette La Sardine, which the sailors had gathered in one of the isles of Sapienzi, in the Morea. A part of it was put into the ship's copper, and the remainder into those of some of the subaltern officers. At four o'clock they all dined. In a short time, vertigo, vomiting, convulsions,&c. were generally experienced: and when Dr. Picard, the surgeon, came on board, he observed the gunner making a thousand grimaces and contortions. By keeping up the evacuations, most of them recovered; but those in whom there were none, remained for some time in a sickly condition."—*Foderé*, vol. IV. p. 23.

Treatment.—When henbane is taken in an over dose, the effects are decidedly *narcotic;* and the same treatment is required that is recommended for Atropa *Belladonna*.

Medical Properties and Uses.—Henbane is one of our most valuable narcotics. The principal use which is made of it, is as a substitute for opium, when the latter disagrees, or is contra-indicated by particular symptoms. In moderate doses it acts as a powerful sedative, diminishing excess of irritability; induces sleep, relieves chronic and anomalous pains of the abdominal viscera, and is often employed, with singular advantage. Conjoined with purgatives, it does not impede their operation; and is therefore frequently prescribed with colocynth and other drastic purgatives, where the bowels are irritable, and where it is necessary to increase their secretions. Colica pictonum, hysteria, rheumatism, gout, and palpitation of the heart, are complaints for which henbane is often recommended: while the bruised leaves have been advantageously used as an external application, in the form of cataplasm, to scrofulous and cancerous ulcers, and other painful diseases. But as in some cases it produces unpleasant symptoms, and sleep, which is laborious and unrefreshing, it is generally resorted to more as a secondary medicine than one which we may confidently apply at first, with reliance on its anodyne affects.

The properties of the seeds would appear to differ from those of the leaves and root; adding some of the symptoms of irritant to those of narcotic poisons; for in several cases persons who have taken the seeds have suffered from convulsions, heat, and dryness in the throat, burning in the stomach, great thirst and delirium; this may probably account for the occasional unpleasant effects that follow the exhibition of an extract, in which perhaps the seeds have been carelessly mixed with the leaves.

Dose. The dose of the extract may be from grs. v. to ℈j; of the tincture from gtt. xx. to 3j.

Off. Prep. Extractum Hyoscyami, *L. E. D.* Tinctura Hyoscyami, *L. E. D.*

Henbane appears to be the poison whose effects are so poetically described by Shakespeare under the name of *hebenon*.

> ——— Sleeping within mine orchard,
> My custom always of the afternoon,
> Upon my secure hour thy uncle stole,
> With juice of cursed hebenon in a vial,
> And in the porches of mine ear did pour
> The leperous distilment; whose effect
> Holds such an enmity with blood of man,
> That, swift as quicksilver, it courses through
> The natural gates and alleys of the body;
> And, with a sudden vigour, it doth posset
> And curd, like eager droppings into milk,
> The thin and wholesome blood: so did it mine, &c.
>
> *Hamlet, Act* 1. *Scene* 5.

HIBISCUS SPLENDENS.—SPLENDID HIBISCUS.

Class XVI. MONADELPHIA.——Order XII. POLYANDRIA.

Natural Order, MALVACEÆ.—THE MALLOW TRIBE.

Character of the Genus, Hibiscus. Involucellum many-leaved, leaves simple, or forked. Calyx five-parted, persistent, valvate in æstivation. Petals of the corolla five, situate on the receptacle, unequally obovate, being joined by ungues to the base of the stamineous tube, convolvate in æstivation. Stamineous tube column-like, naked beneath the apex, truncate, or five-toothed, putting forth filaments more or less abundant. Anthers reniform, two-valved. Ovarium sessile, simple, five-celled. Ovules many or few in the cells, inserted on the central angle. Style terminal, the apex projecting with five divisions. Stigmas in very little heads, rarely cohering. Capsule five-celled, and five-valved, valves bearing septa, containing the seeds on the middle of their margin, no central columella. Seeds many, or sometimes from abortion few, rising upwards, kidney-shaped, testa crustaceous, naked or in scales, or sometimes woolly. Embryo curved in the direction of the seed, within a very small mucilaginous albumen; cotyledons leafy, plicately folded, radicle inferior.

Description of the species, Hibiscus Splendens. Stem round, from four to twenty-two feet high, clothed with stellate pubescence, amongst which are scattered tubular prickles, arising from callous glandular bases, red on the young shoots, green on the old. Branches axillary, round, ascending. Leaves six inches long, from four to six inches broad, palmately divided into three or five lobes, underneath strongly reticulated, thickly covered on each side with a harsh stellate pubescence, lobes lanceolate, irregularly dentate, ribs prominent, more or less aculeate. Petioles in the upper leaves from two to three inches long, roundish, and aculeate, similar to the ribs. Stipules about an inch long, green, subulate, linear, free, exteriorly pubescent. Peduncle solitary, longer than the petiole, single-flowered, and bent a little from the calyx. Involucre about the length of the stipules, segments linear, subulate, sometimes branched. Calyx yellowish, divided into five segments, somewhat longer than the involucre, exteriorly pubescent, segments tapering, three-nerved, the centre forming a strong keel. Corolla unexpanded about three inches in length, when fully expanded from five to six inches in diameter. Petals five, obovate, of a most delicate rose colour, nerves flexuose, prominent on the outside, and pubescent. Stamens numerous, united, filaments pale towards the base, in the upper part rose-coloured. Anthers a dark crimson, arranged in the form of a cone. Pollen large, spherical, hispid. Style about an inch long, projecting about a quarter of an inch beyond the conical combined anthers. Germen five-celled, covered with silky pubescence. Ovules numerous, each cell containing two. Seeds greenish, angular, wrinkled, and warty.

Popular and Geographical Notice. The order Malvaceæ is, for the most part, tropical, and in regions of high temperature the species revel in all their beauty. The present plant is one of the most beautiful of the genus. It is a native of New Holland, where, says its discoverer, Mr. Frazer, it is so beautiful that it is considered the King of all known Australian plants, that its flowers are nine inches across, and so profuse a flowerer is it, that they literally cover the entire plant.

Introduction; Where grown; Culture. This species was raised from seeds sent to this country by Mr. Frazer, in the year 1828, from which flowering plants were raised in 1830. It may be propagated either by seeds, or by cuttings. Its soil should be sand, loam, and peat.

Derivation of the Name. Hibiscus, from ἰβισκος, the Greek name of a plant nearly allied to this genus. Splendens, in allusion to its elegant inflorescence.

"This is the month," says a popular writer, "of the migration of birds, of the finished harvest, of nut-gathering, of cyder and perry-making, and, towards the conclusion, of the change of colour in trees. The swallows and manny other soft-billed birds that feed on insects, disappear for the warmer climates, leaving only a few stragglers behind, probably from weakness or sickness, who hide themselves in caverns and other sheltered places, and occasionally appear upon warm days.. The remainder of harvest is got in; and no sooner is this done, than the husbandman ploughs up his land again, and prepares it for the winter

* We are again indebted for figure and description to Mr. Maund's charming work "the Botanist."

grain. The oaks and beeches shed their nuts, which in the forests that still remain, particularly the New Forest in Hampshire, furnish a luxurious repast for the swine, who feast of an evening in as pompous a manner as any alderman, to the sound of the herdsman's horn. But the acorn must not be undervalued because it is food for swine, nor thought only robustly of, because it furnishes our ships with timber. It is also one of the most beautiful objects of its species, protruding its glossy green nut from its rough and sober-coloured cup, and dropping it in a most elegant manner beside the sunny and jagged leaf. We have seen a few of them, with their stems in water, make a handsome ornament to a mantle-piece, in this season of departing flowers.—The few additional flowers this month are corn flowers, Guernsey-lilies, starwort, and saffron, a species of crocus, which is cultivated in separate grounds. The stamens of this flower are pulled, and dried into flat square cakes for medicinal purposes. It was formerly much esteemed in cookery. The clown in the *Winter's Tale*, reckoning up what he is to buy for the sheepshearing feast, mentions 'saffron to colour the warden-pies.' The fresh trees and shrubs in flower are bramble, chaste-tree, laurustinus, ivy, wild honey-suckle, spirea, and arbutus, or strawberry-tree, a favourite of Virgil, which, like the garden of Alcinous, in Homer, produces flower and fruit at once. Hardy annuals, intended to flower in the spring, should now be sown; annuals of curious sorts, from which seed is to be raised, should be sheltered till ripened; and auriculas in pots, which were shifted last month, moderately watered. The stone-curlew clamours at the beginning of this month, wood-owls hoot, the ring-ouzel re-appears, the saffron butterfly is seen, hares congregate; and, at the end of it, the woodlark, thrush, and blackbird, are heard."

He further observes, that "September, though its mornings and evenings are apt to be chill and foggy, and, therefore, not wholesome to those who either do not, or cannot, guard against them, is generally a serene and pleasant month, partaking of the warmth of summer and the vigour of autumn. But its noblest feature is a certain festive abundance for the supply of all the creation. There is grain for men, birds, and horses, hay for the cattle, loads of fruit on the trees, and swarms of fish in the ocean. If the soft-billed birds which feed on insects miss their usual supply, they find it in the southern countries, and leave one's sympathy to be pleased with an idea, that repasts apparently more harmless are alone offered to the creation upon our temperate soil."

"I am sorry to mention it," says the author of the *Mirror of the Months*, "but the truth must be told even in a matter of age. The year then is on the wane, It is 'declining into the vale' of months. It has reached a certain age, it has reached the summit of the hill, and is not only looking, but descending, into the valley below. But the year steps onward towards its temporary decay, if not so rejoicingly, even more majestically and gracefully, than it does towards its revivification. And if September is not so bright with promise, and so buoyant with hope, as May, it is even more embued with that spirit of serene repose, in which the only true, because the only continuous enjoyment consists. Spring 'never *is*, but always *to be* blest;' but September is the month of consummations—the fulfiller of all promises—the fruition of all hopes—the era of all completeness.

"The sunsets of September in this country are perhaps unrivalled, for their infinite variety, and their indescribable beauty. Those of more southern countries may, perhaps, match or even surpass them, for a certain glowing and unbroken intensity. But for gorgeous variety of form and colour, exquisite delicacy of tint and pencilling, and a certain placid sweetness and tenderness of general effect, which frequently arises out of a union of the two latter, there is nothing to be seen like what we can show in England at this season of the year. If a painter, who was capable of doing it to the utmost perfection, were to dare depict on canvas one out of twenty of the sunsets that we frequently have during this month, he would be laughed at for his pains. And the reason is, that people judge of pictures by pictures. They compare Hobbima with Ruysdael, and Ruysdael with Wynants, and Wynants with Wouvermans, and Wouvermans with Potter, and Potter with Cuyp; and then they think the affair can proceed no farther. And the chances are, that if you were to show one of the sunsets in question to a thorough-paced connoisseur in this department of fine art, he would reply, that it was very beautiful, to be sure, but that he must beg to doubt whether it was *natural*, for he had never seen one like it in any of the old masters!"

Humulus Lupulus

HUMULUS LUPULUS.—THE HOP.

Class XXII. DIŒCIA.—Order V. PENTAGYNIA.

Natural Order URTICEÆ.—THE NETTLE TRIBE.

Fig. (*a*) is a male flower magnified. Fig. (*b*) a single scale of the catkin. Fig. (*c*) the germen with the two styles.

The hop is a perennial plant indigenous to this country. It grows wild in hedges, and flowers in July. It is very abundantly cultivated in Kent, Essex, Surrey, and Suffolk; and the strobiles are picked about the end of August, or beginning of September. The root sends up numerous long striated, angular, rough, flexible stems which support themselves by turning spirally round upright bodies in a direction from left to right. The leaves are opposite, in pairs, petiolate, cordate, serrated, entire, or lobed, and dark green on the upper surface. Both the leaves and petioles are scabrous, with minute prickles, and at the base of each petiole are two interfoliaceous, entire, reflected, smooth stipules. The flowers are axillary and furnished with Bracteæ: the male flowers are yellowish white, in panicles, and drooping; the female, which are on distinct plants, are in solitary strobiles, ovate, pendulous, and composed of membranous scales of a pale greenish colour, tubular from being rolled in at the base, and two-flowered, each containing one round flattish seed of a brown colour, surrounded with a sharp rim, and compressed at the top.

The culture of the hop was introduced into England from Flanders in 1524, and the strobiles were first used for preserving English beer in the latter part of the reign of Henry the Eighth; but there was at first a strong prejudice against them, and a hundred years after, a petition to prohibit their use was presented to Parliament from the City of London. At present, brewers who use any other bitter for preserving their beer are subject to a severe penalty and the number of acres devoted to the cultivation of the hop in Great Britain was found, in 1830, to be 46,727.

At the proper season, that is when the strobiles are yet scarcely ripe, the plants are cut about three feet from the ground, the poles round which they are twined are pulled up, and the strobiles picked off one by one. Those that are over-ripe or defective, are separated from those that are ripe enough, and both kinds are carried to the kiln as soon as possible after they are picked. The heat of the kiln requires to be regulated with great nicety; and in order to prevent the hops from drying too fast, many kilns have two floors, on the uppermost of which the greener strobiles are laid, and gradually dried before being exposed to the heat of the lower floor. The fuel usually employed is charcoal. The strobiles when sufficiently dried become crisp, but after they are laid up in heaps they lose this property, and are somewhat tough and difficult to pulverise. Hops have a strong peculiar, fragrant, and slightly narcotic odour, and a very bitter, aromatic, astringent taste. It was noticed by Sir. J. E. Smith, and M. Planche, that the scales of the hop secreted a yellow powder, and Dr. A. W. Ives, of New York, ascertained that the active properties of the hop reside in this substance, to which he accordingly gave the name of *Lupulin*. It has the peculiar flavour of the hop, and when examined with the microscope it is seen to consist of globules filled with a yellow fluid, like the pollen of plants.

Uses of the Hop. The most important and familiar use of the hop is in the preparation of malt liquors, but it is also used medicinally in several forms. A pillow stuffed with hops has been recommended as a means of inducing sleep in cases of delirium and mania. This means was used with success in the case of King George the Third. Administered internally hop possesses narcotic, tonic, and other medicinal properties. Dr. Maton found, that besides allaying pain and inducing sleep, it diminishes the frequency and increases the firmness of the pulse. It is sometimes serviceable in cases of dyspepsia attended with general irritability and sleeplessness, and has been advantageously used externally as an anodyne and discutient. On the whole its medicinal virtues appear to have been over-rated, and practitioners in general have little confidence in it.

The hop requires a very rich mellow soil and careful cultivation. It is very tender, and the produce is precarious, sometimes giving a great profit to the grower, and at other times failing altogether. The greatest quantity of hops is raised in Kent, but the finest quality in the neighbourhood of Farnham in Surrey. The soil of a hop-garden must be rich to a considerable depth, or made so artificially. The subsoil must be dry and sound; a porous rocky subsoil, covered with two or three feet of good vegetable mould, is the best for hops. The exposure should be towards the south, on the slope of a hill, or in a well-sheltered valley. Old rich pastures make the best hop-gardens. They should be dug two or more spits deep, and

the sods buried at the bottom, where they will gradually decay and afford nourishment to the slender roots of the plants which strike deep. A very large quantity of the richest rotten dung, at least 100 cubic yards per acre, should be well incorporated with the soil by repeated ploughings, till it is entirely decomposed and produces that dark tint which is the sure sign of an abundance of humus. The ground should be prepared by laying it up with the spade in high ridges before winter, to expose it as much as possible to the mellowing influence of the frost. A succession of green crops, such as rye cut green or fed off with sheep, early turnips fed off in autumn, or spring tares, are an excellent preparation, by cleaning the land.

The young plants are raised in beds, and may be raised from seed; but it is more usual to plant the young shoots which rise from the bottom of the stems of old plants. They are laid down in the earth till they strike, when they are cut off and planted in the nursery-bed. Care must be taken to have only one sort of hops in a plantation, that they may all ripen at the same time; but where there are very extensive hop-grounds it may be advantageous to have an earlier and a later sort in different divisions, so that they may be picked in succession. The ground having been prepared for planting, it is divided by parallel lines, six or more feet apart, and short sticks are inserted into the ground along these lines at six feet distance from each other, so as to alternate in the rows, as is frequently done with cabbage-plants in gardens. At each stick a hole is dug two feet square and two feet deep, which is filled lightly with the earth dug out, together with a compost prepared with dung, lime, and earth, well mixed. Fresh dung should never be applied to hops. Three plants are placed in the middle of this hole six inches asunder, forming an equilateral triangle. A watering with liquid manure greatly assists their taking root, and they soon begin to show bines. A stick three or four feet long is then stuck in the middle of the three plants, and the bines are tied to these with twine or the shreds of Russia mats, till they lay hold and twine round them. During their growth the ground is well hoed and forked up around the roots, and some of the fine mould is thrown around the stems. In favourable seasons a few hops may be picked from these young plants in the autumn, but in general there is nothing the first year. Early in November the ground is carefully dug with the spade, and the earth being turned towards the plants, is left so all winter.

In the second year, early in spring, the hillocks around the plants are opened, and the roots examined. The last year's shoots are cut off within an inch of the main stem, and all the suckers quite close to it. The suckers form an agreeable vegetable for the table, dressed like asparagus. The earth is pressed round the roots, and the cut parts covered so as to exclude the air. A pole about twelve feet long is then firmly stuck into the ground near the plants; to this the bines are led and tied as they shoot, till they have taken hold of it. If by any accident the bine leaves the pole, it should be carefully brought back to it, and tied till it takes hold again.

Some hop-planters plough up or dig the ground before winter; others prefer doing it in spring, in order not to hasten the shooting, which weakens the plants. The same operations of pruning the shoots, manuring, and placing poles, which were performed the preceding year, are carefully repeated. Particular attention is paid to proportion the length of the poles to the probable strength of the bines; for if the pole is too long, it draws up the bine, and makes it bear less; if it is too short, the bines entangle when they get beyond the poles, and cause confusion in the picking. In September, the flower containing the seed will be of a fine straw colour, turning to a brown; it is then in perfection. When it is over ripe, it acquires a darker tint. No time is now lost, and as many hands are procured as can be set a-picking; great numbers of men and women go out of the towns in the hopping season, and earn good wages in the hop plantations. During the picking they sleep in barns and outhouses.

The hops when picked are dried on a hair cloth in a kiln. When they appear sufficiently dry at bottom they are turned; in order that the upper part may be dried equally with the lower, a wooden cover lined with tin plates is led down over the hops on the hair cloth, to within a few inches of the surface; this reverberates the heat, and the whole is dried equally. The heat must be carefully regulated, in order that it may not alter the colour. When the leaves of the hops become brittle and rub off easily, they are then laid in heaps on the floor, where they undergo a very slight heating. As soon as this is observed, they are *bagged*. This is done through a round hole 25 or 30 inches in diameter made in the floor of the left where the hops are laid. Under this hole is a bag, the mouth of which is drawn through the hole, and kept open by a hoop to which it is made fast. The hoop is somewhat larger than the hole, and the bag remains suspended; a handful of hops is now put into each corner of the bag, and there tied firmly by a cord. A bushel or two of hops are put into the bag, and a man gets into it to tread the hops tight. As the hops are packed by the feet, more are continually added till the bag is full. It is now taken off the hoop, and filled up with the hands as tight as possible. The corners are stuffed as soon as the mouth is partly sewn up, and tied as the lower corners were; when sewed close and tight, it is stored in a dry place till the hops are wanted for sale.

Hyacinthus orientalis

HYACINTHUS ORIENTALIS.—THE ORIENTAL HYACINTH.

Class VI. HEXANDRIA.—Order I. MONOGYNIA.

Natural Order, ASPHODELEÆ.——THE ASPHODEL TRIBE.

Hyacinthus was the name applied by the ancient Greeks to the flower which sprang from the blood of the beloved of Apollo, when slain by his rival Zephyrus. It may be derived either from ia, a violet, or ai, an interjection of grief, and Cynthus, a cognomen of Apollo. Hyacinthus is a genus long celebrated, not only for the beautiful fable whence its name has been fancifully derived, but also for the immense number of varieties which culture has produced. The Hyacinthus orientalis of botanists, a favourite flower in the gardens, a bulbous plant, found wild on the mountains of Persia, and remarkable both for its fragrance and the facility with which it varies in colour, size, and construction of its flowers when raised from seed.

Few spring flowers are more worthy of cultivation than the hyacinth, whether we regard its varied shades of rich colour, or the sweetness of its perfume. The Dutch gardeners have been celebrated for the high state of perfection to which they grow it, and for the monopoly they have secured in the sale of the bulbs, which have even acquired in the shops the familiar name of Dutch roots. The soil and climate of Holland seem to be peculiarly adapted to the plant, for however well imported roots may flower in England for the first season, they soon degenerate and become worthless. It is however probable that this arises from want of skill in our cultivation, rather than from anything unfavourable in our climate: for some gardeners have been successful in growing the same roots for several years in succession. Mr. Herbert says, "I produced for several years successively, at my villa in Surrey, where I had the advantage of the vicinity of the fine sand of Shirley Common, hyacinth flowers fully equal, if not superior, to those obtained from the best Dutch bulbs." As experience is in all respects the surest guide, the more nearly we approach the Dutch method of cultivation, the more likely we are to be successful. According to Mr. Herbert, the compost used at Haarlem is rotten cow-dung, rotten leaves, and fine sand. In making this compost the Dutch gardeners prefer the softer leaves of elm, lime and birch, and reject those of oak, chestnut, walnut, beech, plane, &c., which do not rot so quickly. The cow-dung which they use, is also of a peculiar quality, being collected in the winter when the cattle are stall-fed upon dry food, without any mixture of straw or other litter. The sand is procured in the neighbourhood of Haarlem, where the soil is a deposit of sea sand upon a compact layer of hard undecayed timber, the remains of an ancient forest which has been overwhelmed by the sea. Having all these substances in a proper state, they are prepared in the following manner:— First, a layer of sand is placed, then one of dung, and then one of rotten leaves, each being eight or ten inches thick. These layers are repeated till the heap is six or seven feet high, a layer of dung being uppermost, sprinkled over with a little sand, to prevent the too powerful action of the sun upon it. After the heap has lain for six months or more it is mixed, and thrown up afresh, in which state it remains some weeks to settle, before it is carried into the flower beds. (*Hort. Trans.*, vol. iv., p. 163.)

As hyacinths are planted in Autumn, and bloom early in the season, they never require any water, and as soon as the flowering is over, the more dry the ground can be kept, the better it is for the bulbs. When the leaves turn yellow and are withered, which will take place in about a month after the plants have gone out of flower, the bulbs must be carefully taken up and dried. The practise at Haarlem is this. The leaves should be cut off, and each bulb laid on its side, covering it lightly with the compost, about two inches thick; in this state it should be left about a month, and then taken up in dry weather and exposed to the open air for some hours, but not to a powerful sun, which would be very injurious to it; it should after this be carefully examined, and all the decayed parts removed; afterwards it should be laid up in an airy store-room. (Herbert, *Hort. Trans.*) Florists who have a valuable bed of Hyacinths, generally use an awning

of some kind, to shade them from a bright sun, and protect them from heavy rains. This shade, of whatever material it is made, should be so constructed as to move up and down in favourable weather: in bright sunshine the bed may be exposed from four o'clock in the afternoon, or for a few hours in the morning. If the bed is not shaded, the colours very soon spoil, and will not bear a close examination.

Hyacinths are frequently grown and flowered in water-glasses. Sometimes before they are put into the glasses they are planted in pots, and when the roots have grown a little, they are taken up and washed, and placed in the glasses, or they are placed in the glasses at first. The water must be frequently renewed, or it will soon become fetid and offensive. By far the most curious system of treating forced hyacinths is to invert them in large glass jars filled with water. This must be done when the flowers are nearly expanded; and by placing one above the glass, of the same size and colour with the inverted one, the latter presents an appearance of being the shadow of the former. The flowers retain their freshness much longer in the water than when exposed in the common way; but this circumstance and the curious appearance presented, is all which can recommend the system; of course the fragrance of the hyacinth is in this way entirely lost. The principal difficulty that is experienced by those who force hyacinths in water in sitting rooms is to prevent their growing long, weak, and pale, so as to flower badly, and be in constant danger of upsetting. This is remedied by keeping them close to a window, where they can be constantly exposed to bright light all day long. It may also be added, that in order to secure their pushing out their roots before the leaves lengthen, they should always be kept in the dark for a fortnight or three weeks after they are first placed in the water-glasses, care being taken at that time that the water and the bulbs are not in contact. The moisture that rises into the air, will be sufficient to induce the bulbs to put forth roots; and the total absence of light will prevent the leaves from being stimulated into growth.

Much confusion has prevailed respecting the appellation of the favorite Bell-flowers. The little Campanula, whose blossom "nods on the summit of a stalk so slender, as to appear supported by magic," and which we call the Heath-bell, is the Hare-bell of Scotland, while the Hare-bell of England is the Scottish Blue-bell, intimately associated with one of our most popular modern airs. Indeed, scarcely less celebrated in song than the famed Hyacinth of the ancients, (a flower no longer to be identified with certainty,) is the simple Hare-bell, which with the revival of nature animates

> —"the lone corpse or shadowy dell,
> Wild cluster'd."

The term non-scriptus was applied to this plant by Dodonæus, because it had not the characters Ai, Ai, (the token of grief, as it were impressed by the fatal discus, which deprived this favourite of Apollo of life,) inscribed on the petals, and therefore could not be Hyacinthus poeticus. The true poetical Hyacinth of the ancients is supposed, by those who hazard a conjecture, to be the Red Martagon Lily, most of which Mr. Martyn observes, are marked with a darker colour forming the revered symbol;

> ———"Apollo with unweeting hand,
> Whilome did slay his dearly loved mate,
> Young Hyacinth, the pride of Spartan land;
> But then transformed him to a purple flower."

And Virgil, in speaking of the Hyacinth, uses an epithet peculiarly applicable to the Martagon Lily:

> ———"et ferrugineous Hyacinthos." Georg. 4.

Confirmed also by a description in Ovid, x. These equally display the tokens

> Del languido Giacinto, che nel grembo
> Porta dipinto il suo dolore amaro."

Though the Hare-bell be often admitted into our gardens, the expensive varieties of the Hyacinth which ornament the parterre or the boudoir are derived from H. Orientalis of Aleppo and Bagdad, and sometimes obtain a price of from ten to twenty or even thirty pounds, for a single bulb, especially the fine kinds produced near Haarlem, (of which there are nearly two thousand, and cultivated by the acre,) a species of extravagance scarcely justifiable.

Iris Florentina.

IRIS FLORENTINA.—FLORENTINE IRIS.

CLASS III. TRIANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, IRIDEÆ.—THE CORN FLAG TRIBE.

THE Iris is so called from the brilliancy of its colours and the graceful curve of its petals, emulating the arch of Iris or the rainbow. This species of Iris is a perennial plant, a native of Carniola, and some parts of the south of Europe; but it is common in our gardens, and was cultivated by Gerarde, towards the end of the sixteenth century. The flowers are very handsome, and appear early in May.

The Florentine Iris has a thick tuberous creeping stem, usually called its root; externally it is brown, yellowish white within, and sends out numerous fibres, which are the true roots, from the under part; when these are pared off, the stem appears full of round spots. The leaves are radical, sword-shaped, sheathing, of a glaucous green colour, pointed, and somewhat curved inwards at the apex. The stems are erect, simple, cylindrical, about two feet high, and bearing each two or three flowers. The flowers, which terminate the stalks, are large, white, erect, and spring from a ventricose sheath, or calyx, of two leafy valves. The perianth is divided into six segments, the three outer ones being the largest, reflexed and spreading; they are thick and fleshy near the base, and bearded within, with white hairs, yellow at the tip; the border is rounded, emarginate, and an inch wide, white and striated near the flexure; the inner erect segments are narrow, bluish white, bent inwards, and have thick greenish claws. The stamens are three, lying on the larger petals, and crowned with long pale yellow anthers; the germen is oblong, obtusely triangular, and placed below the corolla; the style is compound, short, and thread-shaped, and separates into three equal dilated segments, of the texture of petals, which arch over the stamens. These are the stigmata. The capsule is three-celled, and contains many flat brown seeds.

QUALITIES.—The recent root is acrid, and excites, when chewed, a pungent heat in the mouth, which continues several hours; but on being dried, this acrimony is lost, and the taste becomes somewhat bitter. That which grows in England has but little odour; but the foreign roots, which are brought from Italy, possess a most agreeable fragrance, resembling violets.

MEDICAL PROPERTIES AND USES—Several species of Iris, amongst which is the I. *florentina*, possess hydragogue purgative properties, and the expressed juice of the latter, in drachm doses, was formerly administered for the cure of dropsy. In its dried state, it also entered into the composition of the *Trochisci Amyli*, in consequence of expectorant virtues being attributed to it; and on the Continent it is still used as an errhine, combined with other substances.

Orris powder is frequently used by females and others, in large quantities, as a perfume, and serious consequences are said to have been produced by this practice. Dr. Aumont, in a paper read before the Royal Academy of Sciences in France, relates a case in which two young girls became paralytic and insensible, from having put a considerable quantity of Orris root into their hair on going to bed. When they awoke in the morning, they were seized with violent headache and giddiness, with pain and heat in the throat, similar to what is produced by cantharides, and the younger of the two was completely paralytic on the right side for more than five hours.

With us, it is now merely employed to cover odours in the mouth, or to form a pleasant basis for tooth-powder. As a dentrifice it is commonly conjoined with burnt hartshorn, charcoal, Armenian bole, dragon's blood, and other substances, as in the following formula:—

R. Pulv. Cornu Cervi usti ʒij.
Pulv. Rad. Iridis Florent. 3ij.
Pulv. Gummi resinæ Sanguis Draconis dicti 3j.
Olei Rosæ gtt. ij. Misce ut fiat pulvis quo dentes fricentur.

Another species of Iris is called the *Fleur-de-luce*, probably a corruption of *Fleur-de-lis*. Louis the seventh of France adopted it on his shield during the crusades; and Edward the Third transferred this emblem from the plains of Cressy to the arms of England.

The fresh roots have been mixed with the food of swine bitten by a mad dog, and they escaped the disease, when others bitten by the same dog died raving mad. The root loses most of its acrimony by drying. Goats eat the leaves when fresh; but cows, horses, and swine refuse them. The roots are used in the island of Java to dye black. Pennant's Tour, 1772, (Linnæus asserts this plant to be decidedly injurious to all cattle, except goats.) Mr. K. Skrimshire has discovered that the seeds afford an excellent substitute for foreign coffee. Being roasted in the same manner, they very much resemble it in colour and flavour, but have something more of a saccharine odour, approaching to that of extract of liquorice. When carefully prepared, they possess much more of the aroma of coffee than is to be found in any of the leguminous or gramineous seeds that have been treated in the same way. Coffee made of these seeds is extremely wholesome and nutritious, in proportion of half an ounce or an ounce to a pint of boiling water.

The leaves smell like rancid bacon. Few plants exceed the Iris in elegance of form and colour. Our gardens exhibit a rich variety; nor should we omit to encourage the Water-flag in ornamental grounds, where naturally, beside the limped stream or translucent lake,

"Amid its waving swords, in flaming gold the Iris towers."

The agency of insects is indispensable to the fecundation of the different species of Iris. In these, as Kölreuter ingeniously remarks, the true stigma is situated on the upper side of a transverse membrane, (arcus eminens of Haller;) which is stretched across the middle of the under surface of the petal, like expansion or style-flag, the whole of which has been often regarded as fulfilling the office of a stigma. The anthers being situated at the base of the style-flag which covers it, at a considerable distance from the stigma, and at the same time cut off from all access to it, by the intervening barrier formed by the arcus eminens, it is clear, that, but for some extraneous agency, the pollen could never arrive at the place of its destination. In this case the humble bee is the operator. Led by instinct, or as Sprengel supposes, by one of those honey-marks (saft-maal,) or spots of a different colour from the rest of the flower, which may be considered as destined to guide insects to the nectaries, she pushes herself between the stiff style-flag and elastic petal, which last, while she is in the interior, presses her close to the anther, and thus causes her to brush off the pollen with her hairy back, which ultimately, though not at once, conveys it to the stigma. Having exhausted the nectary she retreats; and, in doing so, is pressed by the petal to the arcus eminens, but it is only to its lower or negative surface, which cannot influence fertilization. She now takes her way to the second petal, and insinuating herself under its style-flag, her back comes in close contact with the true stigma, which is thus fertilized by the pollen of the first visited anther; and in this manner migrating from one part of the blossom to another, and from flower to flower, she fructifies one with pollen gathered in her search after honey in another. Whoever thus endeavours to unravel the wonderful contrivance of nature, cannot but sensibly feel, and feelingly exclaim—

"Author of all! How bright thy glories shine!
How pure, how perfect is thy least design!"

In the language of flowers, the Iris very appropriately signifies a message, for Iris was the messenger of Juno.

Lavandula Spica.

LAVANDULA SPICA.—LAVENDER, OR SPIKE LAVENDER.

CLASS XIV. DIDYNAMIA.—ORDER I. GYMNOSPERMIA.

NATURAL ORDER, LABIATÆ.—THE MINT TRIBE.

LAVENDER is a dwarf, odoriferous shrub, a native of the south of Europe, and appears to have been cultivated in England previously to the year 1568; it flowers from June to September.

The plant is shrubby, much branched, and rises from two to four feet high; the bark of the younger shoots being of a pale green colour, while that of the stem is rough and brown. The leaves are numerous, linear, hoary, entire, slightly rolled back at the edges; the upper ones sessile, the lower petioled. The flowers form terminating spike-like thyrsi which consist of interrupted whorl-like cymes, in which the flowers are from six to ten, and are furnished with small ovate bracteas. The corolla is of a blue colour, and consists of a longish cylindrical tube, divided at the mouth into two lips, the uppermost of which is larger and bifid, the lower expanded downwards, and divided into three segments. The filaments are four, inclosed within the tubular part of the corolla, and support small simple anthers; the style is slender, and crowned with a bilobed stigma, and rises from the depressed centre of a tetrakenium at the base of the tube.

There are three varieties of Lavender, namely, L. *angustifolia flore albo;* L. *latifolia;* and the L. *Spica,* the subject of this article, which is largely cultivated in the vicinity of London; at Mitcham, in Surrey; Henley-on-Thames, and many other places.

The Lavenders are much prized for the very grateful odour of their essential oils. The flowers and leaves of these plants have long been used as perfumes; and the ancients employed them to aromatize their baths, and to give a sweet scent to water in which they washed, hence indeed their generic name, *Lavandula.* The oil of *Lavandula Spica* is more pleasant than that of the other species, and is distinguished in commerce by the name of oil of Spike, while the others are called oils of Lavender. Sixty ounces of flowers yield only one ounce of oil, hence its high price, and the continual adulterations of the genuine drug, with oil of turpentine. According to Proust, it contains a fourth of its weight or more of Camphor. Lavender is a grateful and powerful stimulant, and it enters into the composition of several carminative medicines; but its chief consumption is as a perfume. It is also one of the ingredients used in the preparations of Eau de Cologne, and of the once famous *Vinaigre des quatre voleurs.*

Powdered Lavender leaves were once used as a cephalic snuff, and large quantities of the plant in flower are annually brought into London, where it is used by the citizens to perfume their wardrobes, and to prevent the moths from fretting their garments.

The distilled oil is particularly celebrated for destroying several kinds of cutaneous insects: if soft spongy paper, dipt in this oil, either alone, or mixed with that of almonds, be applied at night to the parts infested by insects, they will certainly, says Geoffroy, be all found dead in the morning.

QUALITIES.—The flowers of Lavender possess an agreeable fragrant odour, and a pungent bitter taste. *Alcohol* extracts their virtues completely, and elevates in distillation all their odorous parts; water acts less completely.

The oil, however, on which their virtues depend, is obtained separate in distillation with water; in the proportion, according to Lewis, of one ounce of oil from sixty ounces of flowers.

Lavender is thought of some, says Gerard "to bee that sweet herbe *Casia,* whereof *Virgil* maketh mention in the second Eclog of his Bucolicks:—

> And then shee'l spike and such sweet hearbs infold,
> And paint the Iacinth with the Marigold.

And likewise in the fourth of his Georgickes, where he intreateth of chusing of seats and places for Bees, and for the ordering thereof, he saith thus:—

"About them let fresh Lavander and store
Of wilde Time with strong Sauorie to floure."

Lavender, says Mr. G. Don, "is propagated by slips and cuttings, like rosemary; it likes a dry soil and may be planted either in distinct plants two feet asunder, or to form a sort of hedge row, in one or more lines, especially where large supplies of flowers are required for distilling. The plants will advance in a close, branchy growth, and when established will produce plenty of flowers in July and August. Gather them while in perfection, cutting the spikes off close to the stem; then give the plants occasional trimmings, taking off the gross and rampant shoots of the year, and the decayed flower spikes. In dry gravelly, or poor soil its flowers have a more powerful odour, and the severity of our winters has little effect on it; while in rich garden soil although it grows strongly, it is apt to be killed, and the flowers have less perfume."

Medical Properties and Uses—Cullen observes that, whether applied externally or internally, the *essential oil*, commonly called oil of spike, is a valuable stimulant. The spirit of Lavender enters into the composition of a compound tincture, which is grateful to the palate, and forms a useful cordial for the nervous of the fair sex. The dried leaves were formerly used as a sternutatory, and still enter into the composition of some of the cephalic snuffs.

Off. Prep.—Oleum Lavandulæ. *L. E. D.*
Spiritus Lavandulæ. *L. E. D.*
Tinct. Lavandulæ Comp. *L.*
Spiritus Lavandulæ compositus. *E. D.*
Linimentum Camphoræ compositum. *L.*

In the language of flowers, Lavender signifies acknowledgement.

In Eastern Lands they talk in flowers,
And they tell in a garland their loves and cares;
Each blossom that blooms in their garden bowers,
On its leaves a mystic language bears.

The rose is the sign of joy and love,
Young blushing love in its earliest dawn;
And the mildness that suits the gentle dove
From the myrtle's snowy flower is drawn,

Innocence shines in the lily's bell,
Pure as a heart in its native heaven;
Fame's bright star and glory's swell,
By the glassy leaf of the bay are given.

The silent, soft, and humble heart,
In the violet's hidden sweetness breathes;
And the tender soul that cannot part,
A twine of evergreen fondly wreathes.

The cypress that darkly shades the grave,
Is sorrow that mourns its bitter lot;
And faith that a thousand ills can brave
Speaks in thy blue leaves, Forget me not.

Then gather a wreath from thy garden bowers
And tell the wish of thy heart in flowers.————*Percival.*

Citrus Limonum.

CITRUS LIMONUM.—THE LEMON TREE.

Class XVIII. POLYADELPHIA.——Order III. ICOSANDRIA.

Natural Order, AURANTIACEÆ.——THE ORANGE TRIBE.

It is supposed that the genus Citrus has derived its name from the town Citron, in Judea, but this is very doubtful. The most remarkable varieties of the Lemon in English gardens are, 1st Common Lemon, 2nd Pear-shaped Lemon, fruit small with very little juice, 3rd Imperial Lemon, (the fruit of this variety is sometimes imported from Italy, but mostly from Spain and Portugal,) 4th Furrowed Lemon, 5th Childing Lemon, 6th Double flowered Lemon, 7th Broad leaved Lemon, 8th Chinese Lemon, 9th Rough fruited Lemon, 10th Smoothed leaved Lemon, 11th Gold and Silver striped Lemon, 12th Upright Lemon, 13th Warted fruited Lemon, 14th St. Helena Lemon. Brown mentions this variety as having been introduced into Jamaica, and much cultivated there, on account of its large fruit, which frequently yields about a pint of juice; 15th Fingered Lemon. In China and other parts of the East, they have a remarkable variety of Lemon or Citron, which has a solid fruit, without any cells or pulp and divided about the middle into 5 or more long round parts, a little crooked, and having the appearance of the human hand, with fingers a little bent, whence the Chinese call it, *phat then* or fingered Lemon. *Culture.* The species of Limonia will thrive well in a mixture of loam and peat, with the addition of a little rotten dung; ripened cuttings will root in sand under a hand glass, in a moist heat. The Lemon flowers in May and July. Height from 8 to 20 feet.

Amid the innumerable variety of vegetables (says a French author,) which is spread by the hand of the Creator over the surface of the earth, there are none which can be compared with the Citron tribes, which unite all the advantages of the most agreeable plants with those of the most useful, noble and regular in their form, possessing perpetual verdure in their foliage, beauty of colour and of smell in their flowers, a deliciously flavoured fruit, whose elegant form is adorned with the colour of gold; everything in fact, connected with these charming trees, is formed to delight the sight, to please the smell, and to gratify the taste. The property belonging to the citron tribe of bearing fruit and flowers at the same time, has been beautifully touched upon by Moore:

> Just then beneath some orange trees,
> Whose fruit and blossoms in the breeze,
> Were wantoning together, free,
> Like age at play with infancy, &c.

The whole of the citrus tribe are evergreen trees or shrubs, with axillary spines and simple leaves, with their petioles usually winged. Flowers white and exquisitely fragrant but heavy. Fruit with a yellow rind and soft usually delicious pulp. In the districts toward the sea coast in the south and south west of Italy, especially about Sorento and Amalfi, you meet not only with groves of orange and lemon trees, but almost with forests. Lemon trees were first grown in Britain, in the Botanic Garden at Oxford in 1648. They have been cultivated in the open air in England, and for a hundred years they have been seen in a few gardens in the south of Devonshire, trained as peach trees against the walls, and sheltered only with mats of straw during the winter. The fruit of these is stated to be as large and fine as any from Portugal.

The Portuguese had many of the most curious sorts of Lemons, brought from the Indies formerly, which seemed to thrive almost as well there as in their native soil, and yet they have not been increased. There are a few trees still remaining in some neglected gardens near Lisbon, almost unnoticed by the inhabitants. (Martin.)

The useful parts of the lemon are the juice and the outward rind of the fruit, and the volatile oil of the rind. The juice of lemons is analogous to that of the orange, from which it only differs in containing more citric acid, and less syrup. The quantity of the former is indeed so great, that the acid has been named from the fruit, acid of lemons, and is always prepared from it. The simple expressed juice will not keep on

account of the syrup, extractive mucilage, and water, which cause it to ferment; the yellow peel is an elegant aromatic, and is frequently employed in stomachic tinctures and infusions; and yields by expression or distillation with water an essential oil, which is much used in perfumery. Fresh lemon juice is truly specific in the prevention and cure of scurvy; that is, its effects are certain, and cannot be explained, for the crystallized acid, and even the rob or inspissated syrup, do not produce the same salutary effects. It is given freely mixed with water and sugar, and in a short time the symptoms disappear.

The juice is also a powerful and agreeable antiseptic. Its powers according to Dr. Wright, are much increased, by saturating it with muriate of soda. This mixture he recommends as possessing very great efficacy in dysentery, remittent fevers, pains in the bowels, putrid sore throat, and being perfectly specific in diabetes and lientery. Citric acid is often used with great success for allaying vomiting; with this intention it is mixed with carbonate of potass, from which it expels the carbonic acid with effervescence. This mixture should be drunk as soon as it is made, or the carbonic acid gas, on which its antiemetic power chiefly depends, may be extricated in the stomach itself, by first swallowing the carbonate of potass dissolved in water, and drinking immediately afterwards the acid properly sweetened. The doses are about a scruple of the carbonate dissolved in 8 or 10 drachms of water, and an ounce of lemon juice, or an equivalent quantity of citric acid. DON'S GENERAL SYSTEM OF GARDENING.

Lemonade is often made unskilfully by pouring boiling water on sliced lemons, instead of squeezing lemon-juice into water. A strong infusion is thus made of the aromatic peel, counteracting in some degree the refreshing effects of the juice. This erroneous method seems to have arisen from motives of economy when lemons were very dear. A veteran fruiterer once told us that he recollected lemons being half-a-crown a piece, and that a still older dealer monopolized lemons during a period of the American war, and sold them at 5s. each. (*Penny Magazine*, *No.* 325.)

The French Pharmacopœia, after giving a formula for making *eau gazeuse simple*, simple carbonated water, adds, that by putting two ounces of syrup of lemons in each twenty-ounce bottle, before pouring in the carbonated water, a very pleasant beverage is formed, called *limonade gazeuse*, or effervescing lemonade. "En variant la nature du sirop, on peut préparer ainsi à volonté un grand nombre de boissons acidules et sucrées." Soda-water will do as well as the plain carbonated water. The following is the method of making citric acid given in the London Pharmacopœia; we borrow the translation, as well as the observations on the properties and uses of the remedy, from Dr. A. T. Thomson's Dispensatory.

Take of lemon juice, four pints; prepared chalk, four ounces and a half; diluted sulphuric acid, twenty-seven fluid ounces and a half; distilled water, two pints. Add the chalk by degrees to the lemon-juice heated, and mix them; set by, that the powder may precipitate; then pour off the supernatant liquor. Wash the citrate of lime frequently with warm water; then pour on it the diluted sulphuric acid and the distilled water, and boil for fifteen minutes; press the liquor strongly through a linen cloth, and filter it. Evaporate the filtered liquor with a gentle heat, and set it aside, that crystals may form. To obtain the crystals pure, dissolve them in water a second and a third time; filter each solution, evaporate, and set it apart to crystallize.

MEDICAL PROPERTIES AND USES. The solution of this acid in water, in the proportion of nine drachms and a half of the crystals to a pint of water, answers nearly all the purposes of recent lemon-juice for forming the common effervescing draught with carbonate of potassa. The following table shows the quantity of citric acid required to saturate one scruple of the alkaline salts mentioned in it.

ALKALINE SALTS.	CITRIC ACID.
Bicarbonate of Soda, gr. xx.	gr. x.
Carbonate of Soda, gr. xx.	gr. xij.
Bicarbonate of Potassa, gr. xx.	gr. xiv.
Carbonate of Potassa gr. xx.	gr. xvij.
Sesquicarbonate of Ammonia, gr. xx.	gr. xxiv.

Lilium candidum?

LILIUM CANDIDUM.—THE WHITE LILY.

Class VI. HEXANDRIA.—Order I. MONOGYNIA.

Natural Order, LILIACEÆ.—THE LILY TRIBE.

Professor Lindley describes this tribe as follows:—

Essential Character.—*Calyx* and *corolla* confounded, coloured, regular, occasionally cohering in a tube. *Stamens* 6, inserted into the sepals and petals. *Ovary* superior, 3-celled, many-seeded; *style* 1; *stigma* simple, or 3-lobed. *Fruit* dry, capsular, 3-celled, many-seeded, with a loculicidal dehiscence. *Seeds* flat, packed one upon another in 1 or 2 rows, with a spongy, dilated, often winged integument; *embryo* with the same direction as the seed, in the axis of fleshy *albumen.*—*Bulbs* scaly, or *stems* arborescent. *Leaves* with parallel veins, either lanceolate or cordate. *Flowers* large.

Affinities. Distinguishable from Asphodeleæ by their higher degree of developement, and by the texture of the coat of their seeds. Various degrees of cohesion between their sepals and petals occur, so that we have tubular perianths and revolute ones even in the same genus (Lilium.) Hence Mr. Brown's Hemerocallideæ, which he states differ from Liliaceæ in almost nothing but their tubular perianth, cannot be retained. Decandolle refers Erythonium to Asphodeleæ in the *Botanicon Gallicum;* in the *Flore Française* he placed it in Melanthaceæ; but it surely ought to be stationed here.

Lily (*Lilium*, λειριον, κρινον,) probably derived from an Eastern word signifying a flower, or, as some affirm, from the Celtic *Li*, (whence the Gallic *Lis,*) *whiteness* or *shining,* is a name that has been given to many very different plants; such as the water-lily (Nymphæa), the superb lilies, now commonly so called, and others; even to the *Lilach* (Syringa,) the original Persian name for which has been anglicised without alteration.

The application of this term has been very variously extended and restrained; for the word *lily* has been used both as a general and an individual name. It was thus employed by the ancients, and also, among the moderns, both by Linnæus and Jussieu.

Solomon uses *lily* (Shushan) in a collective sense, and likewise distinguishes, among lilies, the Shushan of the valley; and "a Greater than Solomon," when he gave us the affectionate command to "consider the lilies of the field," seems, while adopting popular language, evidently to have had a similar comprehensive meaning, which may be shewn, both from the context and from modern phyto-geographical researches. Historical references, and a knowledge of local peculiarities, can alone fully develop the impressive beauty of this, as well as of many other passages in ancient records. Thus, for example, it is well known that fuel is so scarce in the Holy Land, and in many parts of the East, that the inhabitants regard large trees with especial reverence, and are obliged to use by turns every kind of combustible matter, such as the withered stalks of herbs and flowers, the tendrils of the vine, and small branches of rosemary, and other plants, to heat their baths and ovens. Allusion to this custom is easily recognized in this passage, and adds much natural force to Christ's concluding remark: "If God so clothe the grass of the field, which to-day is, and to-morrow is cast into the oven, shall he not much more clothe you, O ye of little faith?" The *grass* of the field here evidently includes the lilies, of which the Saviour had just been speaking, and by consequence such herbaceous plants in general; and in such an extensive sense both words are not unfrequently to be taken. This will appear still further evident from the observation of Sir James E. Smith, who, when endeavouring to identify these lilies, which he considers not to have been *lilies* but *amaryllides*, says, "It is natural to presume, the divine Teacher, according to his usual custom, called the attention of his hearers to some object at hand, and, as the fields of the Levant are over-run with the *Amaryllis lutea,* whose golden liliaceous flowers afford in autumn one of the most brilliant and gorgeous sights in nature, the expression of 'Solomon in all his glory not being arrayed like one of these,' is peculiarly appropriate. I consider the feeling," he continues, "with which this was expressed as the highest honour ever done to the study of plants; and, if my botanical conjecture be correct, we learn a chronological fact respecting the season of the

year when the sermon on the Mount was delivered." The white lily and the chalcedonian are, however, both Levantine plants; and many other lilies are natives of, and so abundant in, the East, that a Persian province was called Susiana, and its chief city Sushan, from these beautiful flowers growing there naturally in excess. Hence, although the Amaryllis can by no means be excluded, the other Liliaceæ should be included likewise.

For the following extract we are indebted to that delightful work the "Flora Domestica."

Although we usually associate the idea of extreme whiteness with the lily, so that it is common to express a pure white by comparison with this flower, as with snow, and as white as a lily is an old and common proverb, yet lilies are of almost every variety of colour; perhaps there is no other flower that varies so much in this respect.

"The Common White Lily," says Mr. Martyn, "has been cultivated in England time immemorial." The stem is usually about three feet high. The flowers are brilliantly white, and glossy on the inside. It is from the East; and in Japan the blossom is said to be nearly a span in length. This Lily flowers in June and July. The roots, which are mucilaginous, are sometimes boiled in milk and water, and employed in emollient poultices; but they have not much reputation. An oil for the same purpose was also prepared by infusing the roots in olive oil.

There are several varieties of the White Lily: as, that with the flowers striped or blotched with purple; that with the leaves striped or edged with yellow; one with double, and one with pendulous flowers. The double flowers are less fragrant than the single; and the common kind is generally held in higher estimation than any of the others.

This Lily may easily be increased by offsets, which the bulbs furnish in great plenty. They should be taken off every second year. The best time to remove it is about the end of August, soon after the stalks decay. It will thrive in almost any soil or situation, is very hardy, and not liable to injury by frost. Few plants are more easily increased or preserved than the Lily, so remarkable for the beauty and fragrance of its flowers.

The bulbs, when removed, may be treated as other bulbs; but the sooner these are re-planted the better, as they do not keep so well out of the ground as many others.

This Lily is considered as an emblem of purity and elegance; and

"The lady lily, looking gently down,"

is scarcely less a favourite with the poets than the rose itself.

Ben Jonson to express the extreme loveliness of a beautiful woman, asks—

"Have you seen but a bright lily grow
Before rude hands have touched it?"

"The lily, of all Children of the spring
The palest—fairest too where fair ones are."

BARRY CORNWALL'S FLOOD OF THESSALY.

"Thus passeth yere by yere, and day by day,
Till it felle ones in a morwe of May,
That Emelie, that fayrer was to seene
Than is the lilie upon his stalke greene,
And fresher than the May with floures newe,

For with the rose color strof hire hewe;
(I n' ot which was the finer of them two)
Er it was day, as she was wont to do,
She was arisen and all redy dight;
For May will have no slogardie a-night.

CHAUCER.

——"In virgin beauty blows
The tender lily languishingly sweet."

ARMSTRONG.

"Hevinlie lyllyis with lokkerand toppis quhyte,
Opynnit and schew thare istis redemyte."

GAWIN DOUGLAS.

"Queen of the field, in milk-white mantle drest,
The lovely lily waved her curling crest."

MODERNIZED BY FAWKES.

In the Language of Flowers the White Lily says, Purity and Modesty.

Nymphæa alba.

NYMPHÆA ALBA.—WHITE WATER-LILY.

Class XIII. POLYANDRIA.——Order I. MONOGYNIA.

Natural Order, NYMPHÆACEÆ.—THE WATER-LILY TRIBE.

Leaves heart-shaped, entire; petals oblong; rays of the stigma sixteen, recurved.—Root tuberous, horizontal: leaves floating, nearly circular, heart-shaped, smooth: stalks of the leaves and flowers cylindrical: flowers about four inches in diameter, floating when expanded: calyx-leaves white above; petals white. This, in respect to beauty, is the queen of British flowers. Its large tuberous roots are collected by the Hebridians, who from a decoction of them, mixed with copperas, obtain a black colour for dying wool and yarn. Perennial: flowers in July: grows in pools, lakes, and slow rivers.

The *Nymphæaceæ* are astringent, bitter, and innocuous plants. They are also reputed to possess sedative powers; their rhizomata contain much farinaceous matter; and, when the bitter principle has been removed by repeated washings, their creeping stems are esculent, such especially as those of *N. edulis* and *rubra*. The seeds of *N. rubra* and *N. Lotos* are also eatable. The stems of *N. odorata* contain a large proportion of tannin and gallic acid, and will strike a deep black with the salts of iron: and those of *N. alba* are also used to dye a dark chesnut brown; both have been occasionally employed medicinally as astringents, but their use is almost obsolete, being seldom resorted to as styptics, and only occasionally chewed by singers to relieve relaxation of the uvula and soft palate, give firmness to the vocal organs, and clear the voice. Swine will feed upon the water lilies, both *N. alba* and *Nuphar lutea;* and goats will also eat them; but they are not fed upon by kine, horses, or sheep. The root-stakes of the latter, which is the common yellow water-lily, are said to be destructive to beetles and cock-roaches, when bruised and infused in milk; they are also sometimes burned, to get rid of crickets, to which the smoke is said to be peculiarly obnoxious.

The *Nymphæaceæ* are highly ornamental aquatics, and the flowers of some are very fragrant. Others are scentless; and those of *Nuphar lutea* have an alcoholic odour resembling brandy. They are also physiologically interesting, from the varied elongations of their peduncles to suit the varied depths of the waters in which they grow, and their almost sensitive irritability, which causes their daily elevation above the surface of the water, and the expansion of their petals during the sunshine, and the nocturnal collapse of the flowers, with their drooping heads, which in some instances lie down on the shield-like leaves, and in others retire below the surface of the water during the night, but again emerge on the coming of day.

In some small gardens, says Miller, I have seen these plants cultivated in troughs of water, where they have flourished very well, and have annually produced great quantities of flowers; but as the expence of these troughs is pretty great, (their insides requiring to be lined with lead, to preserve them,) there are few people who care to be at that charge.

Towards the end of this month, says Dr. Aikin, of September, the chimney or common swallow entirely disappears. There are various opinions concerning the manner in which these birds dispose of themselves during the winter; some imagining that they all fly away to distant southern regions, where insect-food is at all times to be met with; others, that they retire to holes and caverns, or even sink to the bottom of ponds and rivers, where they pass the winter months in a torpid and apparently lifeless state. That many of them migrate to other countries, seems sufficiently proved. But some, probably, always stay behind, which are the younger broods, or smaller kinds, that are incapable of so long a flight. For some time before their departure, they begin to collect in flocks, settling on trees, basking on the roofs of buildings, or gathering round towers and steeples, from whence they take short excursions, as if to try their powers of flight.

When Autumn scatters his departing gleams,
Warn'd of approaching Winter, gathered, play
The swallow-people; and toss'd wide around,
O'er the calm sky, in convolution swift,
The feathered eddy floats; rejoicing once,
Ere to their wintry slumbers they retire;
In clusters clung, beneath the mould'ring bank,
And where, unpierc'd by frost, the cavern sweats.
Or rather into warmer climes convey'd,
With other kindred birds of season, there
They twitter chearful, till the vernal months
Invite them welcome back: for, thronging, now
Innumerous wings are in commotion all.

Thomson.

Not only the swallow tribe, but many other small birds which feed on insects, disappear on the approach of cold weather, when the insects themselves are no longer to be met with.

On the other hand, some birds arrive at this season from still more northerly countries to spend the winter with us. The field-fare and redwing, whose departure was mentioned in March, return about the end of September. They feed chiefly on the berries with which our wood and hedges are plentifully stored all the winter.

Those sweet and mellow-toned songsters, the wood-lark, thrush and blackbird, now begin their autumnal music.

The most useful fruit this country affords, the apple, successfully ripens, according to its different kinds, from July to September or October; but the principal harvest of them is about the close of this month. They are now gathered for our English vintage, the *cider-making*, which in some counties is a busy and important employment.

Autumn paints
Ausonian hills with grapes, whilst English plains
Blush with pomaceous harvests, breathing sweets.
O let me now, when the kind early dew
Unlocks th' embosom'd odours, walk among
The well-rang'd files of trees, whose full-aged store
Diffuse ambrosial streams.
Now, now's the time; ere hasty suns forbid
To work, disburthen thou thy sapless wood
Of its rich progeny; the turgid fruit
Abounds with mellow liquor.

PHILLIPS.

The following extract is from the notes to Darwin's Botanic Garden.

Lapsana, Nymphæa alba, Calendula.—And many other flowers close and open their petals at certain hours of the day; and thus constitute what Linnæus calls the Horologe, or Watch of Flora. He enumerates 46 flowers, which possess this kind of sensibility. I shall mention a few of them with their respective hours of rising and setting, as Linnæus terms them. He divides them, 1st. into *meteoric* flowers, which less accurately observe the hour of unfolding, but are expanded sooner or later, according to the cloudiness, moisture, or pressure of the atmosphere. 2nd. *Tropical* flowers open in the morning and close before evening every day; but the hour of the expanding becomes earlier or later, as the length of the day increases or decreases. 3dly. *Æquinoctial* flowers, which open at a certain and exact hour of the day, and for the most part close at another determinate hour.

Hence the Horologe, or Watch of Flora, is formed from numerous plants, of which the following are those most common in this country. Leontodon taraxacum, Dandelion, opens at 5—6, closes at 8—9. Hieracium pilosella, mouse-ear hawk-weed, opens at 8, closes at 2. Sonchus lævis, smooth Sow-thistle, at 5 and at 11—12. Lactuca sativa, cultivated Lettuce, at 7 and 10. Tragopogon luteum, yellow Goatsbeard, at 3—5 and at 9—10. Lapsana, nipplewort, at 5—6 and at 10—1. Nymphæa alba, white water lily, at 7 and 5. Papaver nudicaule, naked poppy, at 5 and at 7. Hemerocallis fulva, tawny Day-lily, at 5 and at 7—8. Convolvulus, at 5—6. Malva, Mallow, at 9—10 and at 1. Arenaria purpurea, purple Sand-wort, at 9—10 and at 2—3. Anagallis, pimpernel, at 7—8. Portulaca hortensis, garden Purslain, at 9—10, and at 11—12. Dianthus prolifer, proliferous Pink, at 8 and at 1. Cichoreum, Succory, at 4—5. Hypochæris, at 6—7, and at 4—5. Crepis, at 4—5, and at 10—11. Picris, at 4—5, and at 12. Calendula field, at 9, and at 3. Calendula African, at 7, and at 3—4.

As these observations were probably made in the botanic gardens at Upsal, they must require farther attention to suit them to our climate.

Mrs. Hemans has some agreeable verses on this subject:

'Twas a lovely thought to mark the hours,
As they floated in light away,
By the opening and the folding flowers,
That laugh to the summer's day.

Thus had each moment its own rich hue
And its graceful cup or bell,
In whose coloured vase might sleep the dew,
Like a pearl in an ocean shell.

To such sweet sighs might the time have flow'd
In a golden current on,
Ere from the garden, man's first abode,
The glorious guests were gone.

Yet is not life in its rich flight,
Mark'd thus—even thus—on earth,
By the closing of one hope's delight,
And another's gentle birth?

Oh! let us live, so that flower by flower,
Shutting in turn, may have,
A lingerer still for the sunset hour,
A charm for the shaded eve.

The Water Lily is the emblem of *Eloquence*.

Cetraria Islandica

Roccella tinctoria?

ROCCELLA TINCTORIA.—DYEING ROCK-MOSS, OR ORCHEL.

Class XXIV. CRYPTOGAMIA.——Order IV. ALGÆ.

Natural Order, ALGÆ.——THE SEA-WEED TRIBE.

The Lichens constitute an extensive natural group of plants, belonging to the class Cryptogamia, of the Linnæan system; and are commonly known in this country by the popular names of *rock-mosses, tree mosses,* and *timestains*. By the illustrious Linnæus they were included in one great and complicated genus, Lichen, but Dr. Erick Acharius, a learned botanist of Stockholm, has since divided the whole series into three distinct tribes, and forty-two genera: and subsequently, Borror, in this country, and Fries, in Germany, have greatly extended our knowledge of these interesting vegetables. In the plants of this Order, there are no regular roots, many of the species being attached by small fibres issuing from the under surface of the frond, or fixed to their place of growth as if by a sort of cement. They are equally destitute of stems, and also of leaves properly so called; the part most analogous to a leaf, and which constitutes the body of the plant, being generally a crustaceous expansion, usually denominated the *frond*, and by Acharius the *thallus*. The species are very numerous; and not a few of them have at different times been employed in domestic economy, in medicine, and the arts. In Lapland, the branched coralline Lichen, Cenomyce *rangiferina*, is highly important in rural economy, as affording fodder for the rein-deer. A few species only have been used as food by men, but several sorts are eaten by goats, and other animals. Of these perhaps the most important in a dietetic point of view is the Cetraria *Islandica*, to be noticed hereafter; and a species mentioned by Professor Pallas, as growing on the calcareous mountains of the great desert of Tartary, and described by Acharius under the name of Urceolaria *esculenta*. In Siberia, the lungwort lichen, Sticta *pulmonacea* is used in the making of ale, as a substitute for hops, and Parmelia *physoda*, Usnea *plicata*, and Ramalina *farinacea*, when eaten with salt, are used in some northern countries as food. Dr. Withering tells us, that the country people in some parts of England, make an infusion of Peltidea *aphthosa*, in milk, and give it to children affected with thrush, and that in large doses it excites purging and vomiting. Nor is this tribe of plants when administered internally, entirely harmless, for according to Pontoppidan, the yellow filamentous lichen, Evernia *vulpina*, is so poisonous, that it is employed for killing wolves, a carcase of some animal stuffed and smeared with the powder of it, mixed with pounded glass, being set as a bait. Several species are used for dyeing, and not a few were at one time considered as of great efficacy in the practice of medicine. Thus the common *cup-moss lichen*, Lichen *pyxidatus*, or Cenomyce *pyxidata*, Ach. was long regarded as an infallible nostrum for the hooping-cough; the *common ground-liverwort*, L. *caninus*, or Peltidea *canina*, Ach., received its trivial name from the fame it had acquired as a specific in the cure of hydrophobia, and the *tree lungwort* or *oak lungs*, was equally renowned in former times for the cure of pulmonary complaints. At the present day, two species only, the Roccella *tinctoria* and Cetraria *Islandica*, the subjects of the following article, are retained in the list of the British Pharmacopœias.

The Orchel or Archil, Roccella *tinctoria*, is an indigenous Lichen, found sparingly on the maritime rocks of the south of England, particularly in Portland Island, and grows very abundantly on the sea rocks of the Cape Verd, and also of the Canary Islands; and from both clusters it is exported in considerable quantities. In France it is called *Orseille*, and is used to a considerable extent in the southern provinces for dyeing silks, being collected on the rocky shores of the Mediterranean. By the Dutch, it is manufactured into a paste called by them *Lacmus* or *Litmus*. This is sold in square masses about an inch in breadth, and thickness; hard and brittle, having the appearance of a violet coloured earth with white spots. The plant seldom exceeds two inches in height: it is firmly fixed to the rocks, and sends up a thick tuft of slender worm-like stems, round, pointed, often curved, more or less branched, smooth, of a white, grey, or brownish hue, studded about their upper part with numerous scarlet tubercles, or wartlike excrescences, replete with a white powder, which has been regarded by Redwig, or pollen or seeds, and by Gærtner and others as a peculiar sort of gems or buds. The latter opinion has been established by Acharius, and lichens are now considered as gemmiparous plants, propagated only by bud-knots, or gongyli.

Although many other species afford colours, this is the most valuable lichen as a dye-stuff. If we may credit Tournefort, it was known to the ancients, being the Ἀνάψην of Dioscorides, and the *Phycos thalassion* of Pliny. It was collected in the islands of the Archipelago, and from one of these acquired the name of *Purple of Amorgus*. In modern times, according to Berthollet, it was prepared as an article of commerce at Florence, the fine violet colour which it was capable of producing, having been accidentally observed by a

Florentine merchant, about the year 1300, while visiting the Levant. The persons by whom the *archil* or *litmus* was formerly prepared, being desirous to keep it a secret, gave it the name of *tincture of turnsole*, pretending that it was extracted from the turnsole, *Heliotropium Europæum*. Its nature is now well known in this country, and large manufactures of it are carried on in London and Liverpool. The Lichen is imported as it is gathered, and is prepared in the following manner:—The plant is first dried, cleansed, and pulverized in a mill like the oil-mill. The powder is then thrown into a trough, with one-half its weight of pearlash; is moistened, and then allowed to ferment. This fermentation is kept up for some time, till the colour of the materials first changes to a purple red, and then to a blue. In this state it is mixed with a third of its weight of very good potash, and spread upon deep wooden trays till dry. A quantity of chalk is added at last, apparently for the mere purpose of increasing its weight. It may here be remarked, "that another species of Roccella, R. *fuciformis*, is reported to vie in richness of colouring matter with the common orchel, while the plant attains to a much larger size. This species, like the former, occurs sparingly on the sea rocks of the south of Europe; but it is said to abound in the East Indies, especially on the shores of Sumatra, and might deserve the notice of some of our enterprising countrymen."

Prepared archil, which has a violet odour, derived from orris root, very readily gives out its colour to water, to volatile spirits and alcohol, and is the substance principally made use of for colouring the spirits of thermometers. As exposure to the air destroys its colour upon cloth, the exclusion of the air produces a like effect in hermetically sealed tubes, the spirits of large thermometers becoming in a few years colourless, and the colour being again restored by the admission of air. Archil stains marble in a beautiful manner; and by the addition of a little solution of tin, this drug gives a durable dye of a scarlet colour.

Medical Properties and Uses.—We know of no medicinal virtues possessed by this lichen, though it was employed at one time for relieving pulmonary complaints. It is, however, used in the manufacture of red and blue syrups; which in the trade are known as syrup of red poppies and syrup of violets.

Litmus is used in chemistry as a most delicate test, either by staining paper with it, or by infusing it in water; which will presently turn red by acids, and have the blue colour restored by an alkali.

CETRARIA ISLANDICA.

ICELAND LICHEN, OR ERYNGO-LEAVED LIVERWORT.

This species of Lichen is a native of the mountainous heaths and woods in the alpine parts of Britain. The late Sir J. E. Smith gathered it on the Pentland Hills, near Edinburgh, on Ben Lomond, and in various parts of Scotland. It occurs on all the heaths and mountains on the north of Europe, and Dr. Holland informs us that it grows abundantly on the lava on the western coast of Iceland, where the whole plant is more luxuriant than with us. Although this Lichen is more or less common in all arctic countries, no mention is made of it by Wahlenberg, in his interesting account of the physical distribution of vegetables in Lapland.

Medical Properties.—Iceland moss was first recommended by Linnæus as a popular remedy in Sweden, for coughs. Scopoli afterwards published his observations on it, but it excited little attention in this country, till Dr. Regnault's treatise on consumption appeared, in which its virtues were highly extolled. According to Bergius, the lichen in its recent state is "eccoprotica," and when dried, "nutriens, pectoralis." In the Dispensatorium Fuldense, it is said to be "astringens, roborans, humectans, inviscans, nutriens, antiseptica." It is not, however, used on the Continent, indiscriminately, in every species of phthisis, nor in every stage of that disorder. It is chiefly recommended in those instances where the cough is attended with purulent expectoration; in cases preceded, or accompanied by hæmoptysis; in incipient phthisis, when from relaxation there is an increased discharge of mucus from the bronchiæ; in the sequelæ of measles, attended by a quick small pulse, pain of the breast, emaciation, violent cough, and purulent expectoration. The use of it is forbidden when vomicæ are already formed, and proceeding towards ulceration; in dyspnœa, and when there is an increased action of the vessels, with diminished expectoration. Neither has the use of Cetraria *Islandica* been confined to phthisical cases; for it has been recommended in malignant fevers, dysentery, and hæmatemesis. The decoction as ordered by our pharmacopœias, is so bitter as to prevent many persons from taking it; and when deprived of its disagreeable taste, it can only be viewed as a demulcent, and hardly equal in effects to linseed, quince seed, and marsh-mallows. Iceland moss certainly does not cure phthisis pulmonalis, but in the last stage of that disease, when solid food is oppressive, and the diarrhœa appears to be kept up by the acrid contents of the stomach and bowels; it has appeared to us to check the latter, and to impart both vigour and nourishment to the digestive organs.

Off. Prep.—Decoctum Lichenis Island. L. E. D.

Lophospermum erubescente scandens.

LOPHOSPERMUM ERUBESCENTE-SCANDENS, HYBRID CLIMBING LOPHOSPERMUM.

CLASS XIV. DIDYNAMIA.——ORDER II. ANGIOSPERMIA.

NATURAL ORDER, SCROPHULARIACEÆ.—THE FIG-WORT TRIBE.

CHARACTER of the Genus, Lophospermum. Calyx five-parted. Corolla campanulate; limb five-lobed, nearly equal. Capsule two-celled, dehiscing irregularly. Seeds imbricated with a membranous wing.

Description of the Hybrid, Lophospermum Erubescente-scandens. Stems or branches herbaceous, long, terete, slender, pale green, more or less tinged with red; and covered with fine, short, patent, glandular pubescence. Leaves alternate, petiolated, from cordate and sub-acute, to cordato-hastate and acuminated; broadly and unequally toothed, with the teeth shortly mucronate. The largest are about three inches long by three broad, of a dull yellowish green, and covered with the same pubescence as the stems. The petioles are about two inches, grooved above, and serve the purpose of tendrils, by twisting round objects. About seven primary sub-digitate nerves, prominent below, with corresponding depressions above; the secondaries few and little conspicuous. Peduncles about an inch long, axillary, solitary, flexuose, one-flowered. Calyx five-partite, with the segments above an inch in length, sub-cordato-lanceolate, connivent, and a little pinched in the middle at the base, so that their margins (which are slightly undulated) form prominent angles; the uppermost segment rather larger than the other four. Corolla twice as long as the calyx, labiately-funnel-shaped, of a purplish rose-colour, with the base dilated and white, slightly pubescent outside, except along the sides, flattish above, with two depressed lines below, which, on the inside of the tube, form two elevated ridges, covered with bright yellow, glandular, pubescence; the throat is mottled inside; the limb five-lobed, and sub-bilabiate; the two upper lobes somewhat larger, rounded, slightly reflected, and slightly pubescent within; the three lowermost lobes patent, the middle one rather the smallest. Stamens four, didynamous, two as long and two rather longer than the tube, to which they are attached immediately above the dilated base: filaments hairy below, glandular towards the top, and smooth in the middle. Anthers cream-coloured, incumbent, two-lobed, lobes free below, oblong, bursting longitudinally, the connective projecting backwards in the form of a small white gland. There is a minute tuft of hair between the two shorter stamens, which may be considered as a fifth rudimentary stamen. Pistil length of the shorter stamens. Ovarium conical, depressed, two-celled, hairy above, seated on a pale, smooth, fleshy disk; style subulately-filiform, and (together with the stamens) inclined to the upper side of the corolla, glabrous, but with a few glandular hairs near the base. Stigma small, forming a mere glandular apex, curved at right angles to the style, obscurely lobed, though one lobe is evidently longer than the other. Ovules in each cell numerous, attached to a central placenta.

POPULAR AND GEOGRAPHICAL NOTICE. This plant is a hybrid, raised in the year 1840, by Mr. Turner, of the Bury Botanic Garden, from seeds of the Lophospermum scandens, fertilized by pollen of the Lophospermum erubescens; and it may be considered a decided improvement (if we may use such an expression,) on the general appearance and beauty of either parent. We are entirely opposed in sentiment to those persons who *regret* the introduction of hybrid plants, merely because it is troublesome to assign to them a place in our systematic arrangements. We would request the systematist to remember that the botanist has a higher object than merely describing and arranging specific forms. Such a branch of our science must ever be looked upon as a means to an end. The ultimate aim of true science is to ascertain the laws by which nature is governed; and the more we multiply our experiments, and the more care we take in noting the results, the more likely are we to arrive at definite notions of those laws. At present no one knows with certainty what are the true limits to the variations in form which any one species may assume; and it is impossible to foresee whether multiplied observations on hybridizing may not lead us to some law of vegetation by which a botanist may be able to pre-determine the possible limits of every species, as accurately as a mineralogist can now define the limits within which all those forms of crystallization must necessarily lie, which belong to any particular simple mineral.

INTRODUCTION; WHERE GROWN; CULTURE. It has already been mentioned that this hybrid plant was raised in the Botanic Garden of Bury St. Edmund's, by Mr. Turner, the curator of that establishment. We are informed that for the more convenient and extensive disposal of it to all who desire to possess the plant, the stock of it has been disposed of to the Messrs. Henderson, Nurserymen, of Pine Apple Place, Edgeware Road, London. Under the care of these extensive and superior cultivators we doubt not but it will meet every attention which may tend to develope its superiority. They have called the plant Lophospermum Hendersonii. Diogenes would, we fancy, have almost smiled, had he witnessed our present system

of giving names; the frequency of it, however, in the present day, renders the little trait of vanity which it displays quite excusable. In the present instance, we doubt not, its proper appellation will be adopted, now that it is figured and published. The system of compounding the specific names of parent plants, between which hybrids have arisen, was first proposed in Maund's Botanic Garden, and applied to a plant raised by the author himself. Under No. 385 of that work it is observed, "Authors have not agreed on the most convenient mode of naming hybrid or mule plants. Some have thought that names may be completely arbitrary; some name them after the person with whom they originated; whilst others would altogether excommunicate such productions from botanical nomenclature. Notwithstanding the opposite theoretical position taken by some botanists, we believe, doubtlessly, that hybrid plants become established, and hold a permanent place in the vegetable kingdom; it is, therefore, but reasonable to notice them; and it is far better that their origin be registered, whilst it is known, in lieu of remaining to become the subject of future conjecture and error."

. In allusion to the Lophospermum erubescente-scandens Mr. Turner says, "It is remarkable for its strong growth, its bright green foliage, and above all, the extreme abundance of its flowers, which are of a very superior colour and size, compared with either of its parents. In fact, numbers of persons, who have seen the plant trained up against one of the old abbey walls, have pronounced it to be one of the finest ornaments for a wall or trellis that our gardens can boast."

• It demands no peculiarity of management. If the root be left in the open ground during winter, it must be covered over as a protection against frost.

We are indebted for the following passages to William Howitt's agreeable work upon the Seasons.

Gawain Douglas, the celebrated Bishop of Dunkeld, has given the following most excellent sketch of Winter. "The fern withered on the miry fallows, the brown moors assumed a barren mossy hue; banks, sides of hills, and bottoms grew white and bare; the cattle looked hoary from the dank weather; the wind made the red reed waver on the dike. From the crags, and the foreheads of the yellow rocks, hung great icicles, in length like a spear. The soil was dusky and grey, bereft of flowers, herbs, and grass. In every hold and forest, the woods were stripped of their array. Boreas blew his bugle-horn so loud, that the solitary deer withdrew to the dales; the small birds flocked to the thick briars, shunning the tempestuous blast, and changing their loud notes to chirping; the cataracts roared, and every linden-tree whistled and brayed to the sounding of the wind. The poor labourers, wet and weary, draggled in the fen. The sheep and shepherds lurked under the hanging banks, or wild broom. Warm from the chimney-side, and refreshed with generous cheer, I stole to my bed, and lay down to sleep, when I saw the moon shed through the window her twinkling glances, and wintry light; I heard the horned bird, the night-owl, shricking horribly with crooked bill from her cavern; I heard the wild geese with screaming cries fly over the city through the silent night. I was soon lulled to sleep, till the cock, clapping his wings, crowed thrice, and the day peeped. I waked and saw the moon disappear, and heard the jackdaws cackle on the roof of the house. The cranes, prognosticating tempests, in a firm phalanx, pierced the air with voices sounding like a trumpet. The kite, perched on an old tree, fast by my chamber, cried lamentably,—a sign of the dawning day. I rose, and half opening my window, perceived the morning, livid, wan, and hoary; the air overwhelmed with vapour and cloud; the ground stiff, grey, and rough; the branches rattling; the sides of the hill looking black and hard with the driving blasts; the dew-drops congealed on the stubble and rind of trees; the sharp hail-stones, deadly-cold, hopping on the thatch and the neighbouring causeway."

We are now placed in the midst of such wintry scenes as this. Nature is stripped of all her summer drapery. Her verdure, her foliage, her flowers have all vanished. The sky is filled with clouds and gloom, or sparkles only with a frosty radiance. The earth is spongy with wet, rigid with frost, or buried in snows. The winds that in summer breathed gently over nodding blooms and undulating grass, swaying the leafy boughs with a pleasant murmur, and wafting perfumes all over the world, now hiss like serpents, or howl like wild beasts of the desert; cold, piercing, and cruel. Everything has drawn as near as possible to the centre of warmth and comfort. The farmer has driven his flocks and cattle into sheltered home inclosures, where they may receive from his provident care that food which the earth now denies them; or into the farmyard itself, where some honest Giles piles their cratches plentifully with fodder. The labourer has fled from the field to the barn, and the measured strokes of his flail are heard daily from morn till eve. It amazes us, as we walk abroad, to conceive where can have concealed themselves the infinite variety of creatures that sported through the air, earth, and waters of summer. Birds, insects, reptiles, whither are they all gone? The birds that filled the air with their music, the rich blackbird, the loud and cheerful thrush, the linnet, lark, and goldfinch, whither have they crept? The squirrel that played his antics on the forest-tree, and all the showy and varied tribes of butterflies, moths, dragonflies, beetles, wasps and warrior-hornets, bees, and cockchafers, whither have they fled? Some, no doubt, have lived out their little term of being, and their bodies, lately so splendid, active, and alive to a thousand instincts, feelings, and propensities, are become part and parcel of the dull and wintry soil; but the greater portion have shrunk into the hollows of trees and rocks, and into the bosom of their mother earth itself, where, with millions of seeds and roots, and buds, they live in the great treasury of Nature, ready at the call of a more auspicious season to people the world once more with beauty and delight.

Nymphæa nelumbo.

NYMPHÆA NELUMBO.—THE LOTUS OF INDIA.

Class XIII. POLYANDRIA.—Order VI. POLYGYNIA.

Natural Order, NYMPHÆACEÆ.——THE WATER-LILY TRIBE.*

Carpels many, distinct, and half immersed in the profoundly honey-combed obconical, elevated torus, each bearing a style with a solitary seed in each carpel which is exarillate, and destitute of albumen. Flowers large shewy, white, red, or yellow. Both leaves and flowers rising above the surface of the water.

The Trunk of the root horizontal, fleshy, white, sending out many fibres from the under surface. Petioles long, rising beyond the surface of the water, scabrous with acute tubercles. Leaves large, 1 or 2 feet in diameter, exactly peltate in the centre, orbicular entire, glabrous, under surface palest, margins somewhat waved. Peduncles longer than the petioles, erect, scabrous. Flowers large, emulating *Paònia* and *Papàver*, white or red. Fruit resembling an instrument once used in play by the French, by the very antique name *Lotos* (D. C.) It was known to the Greeks, and is said by Herodotus, Theophrastus, and others, to be a native of Egypt, but no modern traveller has observed it in that country. There can, however, be no doubt of its having actually existed there, either naturally or cultivated, since the terms in which it is described by those authors are too clear and decisive to be mistaken, and their accounts are confirmed by ancient Egyptian sculptures and mosaics, which are still preserved, and testify that from the earliest times it, as well as the proper *Lotos*, has obtained a religious reverence. It is remarkable that neither Herodotus nor Theophrastus, the most ancient writers by which it is described, have attributed any sacred character to it, but speak of it as only used as food by the Egyptians. Both root and seeds are esculent, sapid and wholesome. They are accounted cooling and strengthening, and to be of service in extreme thirst, diarrhœa, tenesmus, vomiting, and too great internal heat. In China it is called *Lienwha*, and the seeds, and slices of the hairy root, with the kernels of apricots and walnuts, and alternate layers of ice were frequently presented to the British Ambassador and his suite at breakfasts given by some of the principal Mandarins. The roots are laid up by the Chinese in salt and vinegar for the winter. Sir George Staunton remarks that the leaf besides its common uses, has, from its structure, growing entirely round the stalk, the advantage of defending the flower and fruit arising from its centre from contact with the water, which might injure them. He also remarks that the stem never fails to ascend in the water from whatever depth, unless in a case of sudden inundation, until it attains the surface, when its leaf expands, rests upon it, and often rises above it. Many varieties of the plant are distinguished by the Chinese; one of them with pure-white flowers, and another having about an hundred petals white or rose-coloured. From the root of the *Nelumbo* Sir George Staunton says the Egyptians are supposed to have prepared their *Colocasia*, but the plant is no longer to be found wild in that country, from which circumstance some naturalists infer that it never was indigenous there, but cultivated by the inhabitants with extreme care. The ancient Romans made repeated efforts to raise it among them from seeds brought out of Egypt. Dr. Patrick Browne is of opinion that the ancients confounded two plants under the name of *Lotos* or *Egyptian-bean*, and that under these titles they described the upper parts of the *Nelùmbium* and the roots of *Calàdium Colocásia* now commonly called *Coccos* in Jamaica. Thunberg says that it is considered as a sacred plant in Japan, and pleasing to their deities, and that the images of their idols were often drawn sitting on its large leaves. Loureiro relates that it abounds in muddy marshes in India and China, and is cultivated in large handsome pots in the gardens and houses of the Mandarins. The Chinese have always held this plant in such high value, that at length they regarded it as sacred. The seeds are somewhat of the size and form of an acorn, and of a taste more delicate than that of almonds. The ponds in India and China are literally covered with the plant, and exhibit a very showy appearance when it is in flower, and the flowers are no less fragrant than handsome. The leaves grow out of the water, and do not float upon it, as is usual with the rest of the tribe. It is the *Pythagorean bean* of the ancients, and has been regarded from the most remote periods as an emblem of fertility. Perhaps many species are confused under *N. speciòsum*.

The flowers of the Lotus are often blue, and in speaking of the Spirit of Love, a great authority says:—

> His floating eyes—Oh! they resemble,
> Blue water-lilies when the breeze,
> Is making the stream around them tremble.†

* We are indebted for the annexed figure to Mr. James Smith's "Exotic Botany."

†Lalla Rookh.

The love of flowers, says the author of the Flora Domestica, is a sentiment common alike to the great and to the little; to the old and to the young; to the learned and the ignorant, the illustrious and the obscure. While the simplest child may take delight in them, they may also prove a recreation to the most profound philosopher. Lord Bacon himself did not disdain to bend his mighty intellect to the subject of their culture.

Lord Burleigh also found recreation from the cares of state in his flower-garden. Ariosto, although utterly ignorant of botanical science, took even an infantine pleasure in his little garden; and we are informed by his son, that after sowing a variety of seeds, he would watch eagerly for the springing of the plants, would cherish the first peep of vegetation, and having for many days watered and tended the young plant, discover at last that he had bestowed all this tenderness upon a weed; a weed, perhaps, which had choked the plant for which he had mistaken it.

"He treated his garden as he did his verses, never leaving any thing three months in the same place. Whenever he planted or sowed any thing, he went so often to see if it sprouted, that at last he broke the shoot: and having little knowledge of plants, he took any leaves that appeared near the place where he had sown his seed for the plants sown, and tended them with the greatest diligence, till his mistake was clear beyond doubt. I remember once when he had sown some capers, he went every day to look at them, and was delighted to see them thrive so well. At last he found these thriving plants were young elders, and that none of the capers had appeared."—NOTES BY VIRGINIO ARIOSTO, FOR A LIFE OF HIS FATHER.

Who can read this anecdote of so great a man, and not feel an additional interest in him! In how amiable a light it represents him! Was a cruel, unfeeling, or selfish man ever known to take pleasure in working in his own garden? Surely not. This love of nature in detail (if the expression may be allowed) is a union of affection, good taste, and natural piety.

How amiable a man was Cowper!—and Evelyn too, and Evelyn's friend, Cowley, who addressed to him a poem entitled The Garden. Gessner also is represented as of a kindred sweetness of nature. They all worked in their own gardens, and with enthusiastic pleasure.

Barclay, the author of the Argenis, rented a house near the Vatican, in Rome, with a garden in which he planted the choicest flowers, principally such as grow from bulbs, which had never been seen in Rome before. He was extremely fond of flowers, particularly of the bulbous kind, which are prized chiefly for their colours, and purchased the bulbs at a high price.

Pope had the same taste, and was assisted in his horticultural amusements by Lord Peterborough. One of the most interesting descriptions of him represents him as being seen before dinner in a small suit of black, very neat and gentlemanly, with a basket in his hand containing flowers for the Miss Blounts. Rousseau, who has written some interesting Letters on Botany, of which among his other accomplishments he was master, found friends in the flowers, when he thought he had no others.

The great operations of nature during this month, says Dr. Aikin, seem to be, to dry up the superabundant moisture of February, thereby preventing the roots and seeds from rotting in the earth; and gradually to bring forward the process of evolution in the swelling buds, whilst, at the same time, by the wholesome severity of chilling blasts, they are kept from a premature disclosure, which would expose their tender contents to injury from the yet unsettled season. This effect is beautifully touched upon in a simile of SHAKESPEAR'S:—

> And like the tyrannous breathings of the north,
> Checks all our buds from blowing.

This seeming tyranny, however, is to be regarded as the most useful discipline; and those years generally prove most fruitful, in which the pleasing appearances of Spring are the latest.

The sun has now acquired so much power, that on a clear day we often feel all the genial influence of Spring, though the naked shrubs and trees still give the landscape the comfortless appearance of Winter. But soft pleasant weather in March is seldom of long duration.

> As yet the trembling year is unconfirm'd,
> And Winter oft at eve resumes the breeze,
> Chills the pale morn, and bids his driving sleets
> Deform the day delightless.

As soon as a few dry days have made the land fit for working, the farmer goes to the plough; and if the fair weather continues, proceeds to sowing oats and barley, though this business is seldom finished till the next month. The importance of a dry season for getting the seed early and favourably into the ground, is expressed in the old proverb:—

> A bushel of March dust is worth a king's ransom.

Zizyphus Lotus

ZIZYPHUS LOTUS, OR RHAMNUS LOTUS.—THE LOTUS TREE.

Class V. PENTANDRIA.—Order III. TRIGYNIA.

Natural Order, RHAMNEÆ.—THE BUCK-THORN TRIBE.

The Lotus is a tree of no great height, rough and thorny, with leaves ovate, retuse, toothletted, and are as well as the branchlets, smooth, prickles wanting or in twin, one of them recurved; drupe ovate, oblong. Native of Syria, from whence it has been introduced into Europe. Flowers of a greenish yellow, 2 or 3 together. Fruit saffron coloured, having a sweet granular pulp. This tree is cultivated for its fruits in many parts of the south of Europe, where it is called Jujube. In Italy and Spain the fruit is served at the table in desserts, during the winter season as a dry sweetmeat. It is sold in the markets in the towns of Italy and Spain. The tree is said to have been first introduced into Italy from Syria by Sextus Pampinius, in the time of Augustus Cæsar. The fruit is also sold in abundance in the markets of Constantinople under the name of *Hunnab-agaghi*, and which has for a long time been imported into the west of Europe under the name of *Jujube*. The Turks plant the trees before their coffee-houses with other trees, to enjoy the shade and fruit in their season. It grows wild in Africa, especially in the kindom of Tunis, in a tract called *Jereed*, which was formerly the country of the Lotophagi. The Lotophagi as the Greeks call them, possessed a considerable part of the sea coast, between the two Syrtes, the island of Meninx (now Jerba) and the coast beyond it as far as the lake and river Tritonis to the Machlies. Scylax extends the name to the tribes between the two Syrtes. Ptolemy limits them to the neighbourhood of the river Cinyps, while Herodotus appears to confine them to the west of that river. Strabo places them in the neighbourhood of Jerba, although he calls the adjoining Syrtes that of the Lotophagi. Pliny assigns them, in addition to the island, the environs of the Syrtes also. But the allotment of this confined space to the eaters of lotos was owing to the want of a more extended knowledge of the countries that border on the desert, for it appears that the tribes who inhabit them eat universally of this fruit, in a greater or less degree, and most of them apparently as much as they can obtain of it. The Arabs know the plant by the name of *Seedra*. A kind of wine is made from the fruit by expression, and diluted with water, but this will not keep more than a few days.

Mungo Park, in his travels in the interior of Africa, observed two negroes sitting among some thorny bushes, who had been gathering *tomberongs*, of which he gives this account:—"These are small farinaceous berries, of a yellow colour and delicious taste, which were no other than the fruit of the Rhamnus Lotus of Linnæus. They had gathered two large baskets full in the course of the day. These berries are much esteemed by the natives, who convert them into a sort of bread, by exposing them for some days to the sun, and afterwards pounding them gently in a wooden mortar, until the farinaceous part of the berry is separated from the stone. This meal is then mixed with a little water, and formed into cakes, which when dried in the sun, resemble in colour and flavour the sweetest gingerbread. The stones are afterwards put into a vessel of water, and shaken about, so as to separate the meal, which may still adhere to them, this communicates a sweet and agreeable taste to the water, and with the addition of a little pounded millet makes a pleasant gruel called *fondi* which is the common breakfast in many parts of Ludamar, during the months of February and March. The fruit is collected by spreading a cloth upon the ground, and beating the branches with a stick. The Lotus is very common in all the kingdoms which I visited, but is found in greatest plenty on the sandy soil of Kaarta, Ludamas, and the northern parts of Bambarra; where it is one of the most common shrubs of the country. "As this shrub is found in Tunis, and also in the Negro kingdoms, and as it furnishes the natives of the latter with a food resembling bread, and also with a sweet liquor which is much relished by them, there can be little doubt of its being the Lotus mentioned by Pliny as the food of the Libyan Lotophagi."

Among the adventures of Ulysses on his return to his native country after the siege of Troy, by adverse winds and unmanageable currents, he arrived at an island inhabited by a people called Lotophagi, where he landed to take in water and refresh his crew, after they were refreshed, he sent three men into the country to learn some particulars concerning the natives, and they found them a friendly people, who offered them to taste of the Lotus of which he who had once tasted, Homer says, had no desire to return, but rather wished to live with them, and renounce all thoughts of home. It would seem, however, that they returned to Ulysses, most probably drunk, for they were refractory, and he was obliged to use force to get them on board, and then he confined them, bound underneath the benches on which the rowers sat, and fearing lest any more of his men should be induced to try the fascinating effects of the Lotus, he immediately departed.

Pope has thus translated this account.

Three men were sent deputed from the crew,
(An Herald, one,) the dubious coast to view,
And learn what habitants possess'd the place,
They went, and found an hospitable race:
Not prone to ill, nor strange to foreign guest,
They eat, they drink, and nature gives the feast;
The trees around them all their food produce,
Lotus the name, divine nectareous juice!
(Thence call'd *Lotophagi*) which whoso tastes,
Insatiate riots in the sweet repasts,
Nor other home, nor other care intends,
But quits his house, his country, and his friends:
The three we sent from off th'enchanting ground
We dragg'd reluctant, and by force we bound:
The rest in haste forsook the pleasing shore,
Or, the charm tasted, had returned no more.

Odyssey Book ix.

Of July, Dr. Aikin says; the animal creation seem oppressed with languor during this hot season, and either seek the recesses of woods, or resort to pools and streams to cool their bodies, and quench their thirst.

On the grassy bank
Some ruminating lie; while others stand
Half in the flood, and often bending sip
The circling surface. In the middle droops
The strong laborious ox, of honest front,
Which incompos'd he shakes; and from his sides
The troublous insects lashes with his tail,
Returning still.

Thomson.

William Howitt thus describes some of the characteristics of this month.

Spring-flowers have given place to a very different class. Climbing plants mantle and festoon every hedge. The wild hop—the bryony—the clematis, or traveller's joy—the large white convolvulus, whose bold yet delicate flowers will display themselves to a very late period of the year—vetches, and white and yellow ladies' bed-straw, invest every bush with their varied beauty, and breathe on the passers by their faint summer sweetness. The *Campanula rotundifolia*, the hare-bell of poets and the blue-bell of botanists, arrests the eye on every dry bank, rock, and way side, with its hairy stems and beautiful cerulean bells. There too we behold wild scabiouses, mallows, the woody-nightshade, wood-betony, and centaury: the red and white striped convolvulus also throws its flowers under your feet; corn-fields glow with whole armies of scarlet poppies, cockle, and the rich azure plumes of the viper's bugloss; even thistles, the curse of Adam, diffuse a glow of beauty over waste and barren places. Some species, particularly the musk-thistle, are really noble plants, wearing their formidable arms, their silken vests, and their gorgeous crimson tufts of fragrant flowers issuing from a coronal of interwoven down and spines, with a grace which casts far into the shade many a favourite of the garden.

But whoever would taste all the sweetness of July, let him go, in pleasant company, if possible, into heaths and woods: it is there, in her uncultured haunts, that Summer now holds her court.. The stern castle, the lowly convent, the deer, and the forester, have vanished thence many ages; yet nature still casts round the forest-lodge, the gnarled oak, and lonely mere, the same charms as ever. The most hot and sandy tracks, which we might naturally imagine, would now be parched up, are in full glory. The Erica Tetralix, or bell-heath, the most beautiful of our indigenous species, is now in bloom, and has converted the brown bosom of the waste into one wide sea of crimson; the air is charged with its honeyed odour: the dry elastic turf glows, not only with its flowers, but with those of the wild thyme, the clear blue milk-wort, the yellow asphodel, and that curious plant the sun-dew, with its drops of inexhaustible liquor parkling in the fiercest sun like diamonds.

Macleania longiflora.

MACLEANIA LONGIFLORA.—LONG-FLOWERED MACLEANIA.

CLASS XVI. MONADELPHIA.——ORDER IV. DECANDRIA.

NATURAL ORDER, VACCINIEÆ.——THE BILBERRY TRIBE.

WHEN Sir William Hooker named a plant Macleania, he not only paid a well merited compliment, for few British merchants have deserved better of Botany than Mr. John Maclean of Limâ, but he founded a good genus. A less accurate observer might indeed have referred it to Thiebaudia, a group of plants from the same countries, and very similar in habit; but each anther of Thiebaudia is divided into two long tubes, which open at their point; while, on the contrary, in Macleania the anthers have only one tube each.

The plant now described is very near M. angulata, figured in the Botanical Magazine, t. 3979, and said to be from Peru. But that species has shorter and broader leaves with manifest stalks, and the flowers are also shorter, contracted at the orifice, and yellow there. Their colour, too, is represented as much more vivid than in our species.

A warm greenhouse shrub, which requires to be kept in an intermediate house during winter. It may be potted in a compost, consisting of sandy loam and peat in equal proportions. Owing to its producing very fleshy roots, a large pot or tub will be required, or where there is convenience it is probable it would succeed well if planted out in a conservatory. It requires a liberal supply of water in summer, but very little in winter. To have this plant well furnished with young wood from the bottom for flowering, it is necessary to cut it well back early in autumn, in order to have the plant clothed with leaves before winter. It is rather difficult to multiply, but may be managed under a bell glass in a bottom heat of 80°.

NOTE BY MR. HARTWEG.—This is one of the numerous fleshy-rooted vaccinaceous shrubs, frequently met with in dry and exposed situations in the Andes; the present species has been collected on the main Cordillera near Loxa, (4° S.) at an elevation of about 8,000 feet above the sea, where it forms a neat compact evergreen shrub, five feet high, and is called by the inhabitants Salapa.

It is remarked, in the "Literary Pocket Book," that now Christmas-day only, or at most a day or two are kept by people in general; the rest are school holidays. But, formerly, there was nothing but a run of merry days from Christmas-eve to Candlemas, and the first twelve in particular were full of triumph and hospitality. We have seen but too well the cause of this degeneracy. What has saddened our summer time has saddened our winter. What has taken us from our fields and May-flowers, and suffered them to smile and die alone, as if they were made for nothing else, has contradicted our flowing cups at Christmas. The middle classes make it a sorry business of a pudding or so extra, and a game at cards. The rich invite their friends to their country houses, but do little there but gossip and gamble[?]; and the poor are either left out entirely, or presented with a few clothes and eatables that make up a wretched substitute for the long and hospitable intercourse of old. All this is so much the worse, inasmuch as christianity had a special eye to those feelings which should remind us of the equal rights of all: and the greatest beauty in it is not merely its charity, which we contrive to swallow up in faith, but its being alive to the *sentiment* of charity, which is still more opposed to these proud distances and formal dolings out.—The same spirit that vindicated the pouring of rich ointment on his feet, (because it was a homage paid to sentiment in his person,) knew how to bless the gift of a cup of water. Every face which you contribute to set sparkling at Christmas is a reflection of that goodness of nature which generosity helps to uncloud, as the windows reflect the lustre of the sunny heavens. Every holly bough and lump of berries with which you adorn your houses is a piece of natural piety as well as beauty, and will enable you to relish the green world of which you show yourselves not forgetful. Every wassail bowl which you set flowing without drunkenness, every harmless

pleasure, every innocent mirth, however mirthful, every forgetfulness even of serious things, when they are only swallowed up in the kindness and joy with which it is the end of wisdom to produce, is

Wisest, virtuousest, discreetest, best;'

and Milton's Eve, who suggested those epithets to her husband, would have thought so too, if we are to judge by the poet's account of her hospitality."

ANCIENT CHRISTMAS.

And well our christian sires of old
Loved, when the year its course had roll'd
And brought blithe Christmas back again,
With all its hospitable train.
Domestic and religious rite
Gave honour to the holy night:
On Christmas-eve the bells were rung;
On Christmas-eve the mass was sung;
That only night, in all the year,
Saw the stoled priest the chalice rear.
The damsel donn'd her kirtle sheen;
The hall was dress'd with holly green;
Forth to the wood did merry men go,
To gather in the misletoe.
Then open wide the baron's hall,
To vassal, tenant, serf, and all;
Power laid his rod of rule aside,
And ceremony doff'd his pride.
The heir, with roses in his shoes,
That night might village partner choose,
The lord, underogating, share
The vulgar game of "post and pair."
All hailed, with uncontrouled delight,
And general voice, the happy night,
That to the cottage, as the crown,
Brought tidings of salvation down.
The fire, with well-dried logs supply'd,
Went, roaring, up the chimney wide;
The huge hall table's oaken face,
Scrubb'd till it shone, the day to grace,
Bore then upon its massive board
No mark to part the squire and lord.
Then was brought in the lusty brawn,
By old blue-coated serving man;
Then the grim boar's-head frown'd on high,
Crested with bays and rosemary.
Well can the green-garb'd ranger tell,
How, when, and where the monster fell;
What dogs before his death he tore,
And all the baiting of the boar;
While round the merry wassail bowl,
Garnish'd with ribbons, blithe did trowl.
There the huge sirloin reek'd; hard by
Plum-porridge stood, and Christmas pie;
Nor fail'd old Scotland to produce,
At such high tide her savoury goose.
Then came the merry maskers in,
And carols roar'd with blithsome din;
If unmelodious was the song,
It was a hearty note and strong.
Who lists may in their mumming see
Traces of ancient mystery;
White shirts supply the masquerade,
And smutted cheeks the visor made;
But, oh! what masquers, richly dight,
Can boast of bosoms half so light!
England was merry England when
Old Christmas brought his sports again.
'Twas Christmas broach'd the mightiest ale;
'Twas Christmas told the merriest tale;
A Christmas gambol oft would cheer
A poor man's heart through half the year. *Walter Scott.*

"In this, the last month of the year," says the Mirror of the Months,—"the beautiful Spring is almost forgotten in the anticipation of that which is to come. The bright Summer is no more thought of, than is the glow of the morning sunshine at night-fall. The rich Autumn only just lingers on the memory, as the last red rays of its evenings do when they have but just quitted the eye. And Winter is once more closing its cloud-canopy over all things, and breathing forth that sleep-compelling breath which is to wrap all in a temporary oblivion, no less essential to their healthful existence than is the active vitality which it for a while supersedes." Yet among the general appearances of nature there are still many lively spots and cheering aspects. "The furze flings out its bright yellow flowers upon the otherwise bare common, like little gleams of sunshine; and the moles ply their mischievous night-work in the dry meadows; and the green plover 'whistles o'er the lea:' and the snipes haunt the marshy grounds; and the wagtails twinkle about near the spring-heads; and the larks get together in companies, and talk to each other, instead of singing to themselves; and the thrush occasionally puts forth a plaintive note, as if half afraid of the sound of his own voice; and the hedge-sparrow and tit-mouse try to sing; and the robin does sing still, even more delightfully than he has done during all the rest of the year, because it now seems as if he sang for us rather than for himself—or rather to us, for it is still for his supper that he sings, and therefore for himself."

We are indebted for the figure and description of the Macleania to Professor Lindley's excellent work the "Botanical Register."

Cucumis melo

CUCUMIS MELO.—THE MELON.

Class XXII. DIŒCIA.——Order VII. POLYADELPHIA.

Natural Order, CUCURBITACEÆ.——THE GOURD TRIBE.

Cucumis melo (Lin. spec. 1436.) stem trailing, scabrous, cirrhiferous; leaves roundish, angular, petiolate; male flowers having the tube of the calyx rather ventricose at the base, and rather dilated at the apex; stamens inclosed; anthers shorter than their connectives: the hermaphrodite flowers with the anthers as in the males; stigmas 3-4, shortly 2-lobed; fruit ovate or sub-globose, 8-12-furrowed; flesh sugary, yellow, red, or white.

Native of Asia. Called *rhetimou* by the Hindoos; *Melon*, Engl. and Fr.; *Melone*, Germ.; *Mellone*, Ital.

The *melon* is a tender annual, producing one of the richest fruits brought to the dessert, and has been cultivated in England since 1570, but the precise time of its introduction is unknown. It was originally brought to this country from Jamaica, and was, till within the last fifty years, called the *musk-melon*. The fruit, to be grown to perfection, requires the aid of artificial heat and glass throughout every stage of its culture. Its minimum temperature may be estimated at 65°, in which it will germinate and grow; but it requires a heat of from 75 to 80° to ripen its fruit, which, in ordinary cases, it does in 4 months from the time of sowing the seed.

Varieties.—There are numerous varieties, many of which, especially those raised from seeds brought from Italy and Spain, are not worth cultivating. The best sorts are included under the name of *Cantaloups*, an appellation bestowed on them from a seat of the Pope near Rome, where this variety is supposed to have been originally produced. The general character of the *Cantaloups* is a roundish form, rough, warty, or netted outer rind; neither very large in fruit or leaves. The *Romanas*, an Italian sort, are next in esteem, are generally oval-shaped, regularly netted; the fruit and leaves middle-sized, and the plants great bearers. Many varieties of both these sorts, however, that were formerly in esteem, are now lost, degenerated, or supplanted by others of Spanish or Persian origin.

Culture under hand-glasses.—A successive or late crop, to fruit in August and September, may be raised on hot-bed ridges under hand-glasses. Sow in a hot-bed from the middle of March to the middle of April. When the plants have been up a few days, while in the seed-leaves, prick some into small pots, two plants in each; water and plunge them into a hot-bed, managing as directed for the young frame plants, till the rough leaves are from 2-4 inches long, and the plants ready to shoot into runners. From the middle of March to the third week of May, when the plants are a month or five weeks old, they will be fit to ridge out under hand-glasses. With well-prepared stable-dung, or, with a mixture of fermented tree-leaves, build the hot-bed four feet wide and 2½ feet thick, the length acccording to the number of glasses intended, allotting the space of 4 feet to each. In a week or ten days, or when the dung and leaves are brought to a sweet or well-tempered heat, mould the bed 10 or 12 inches thick, then place the glasses along the middle, and keep them close till the bed has warmed the earth. The same or next day, insert the plants; turn them out from the pots with the ball of earth entire, and allotting plants for each glass, insert the ball into the earth, clean down over the top, closing the mould about the stems. Give a little water and place the glasses over close. From about nine in the morning till three in the afternoon, of the first two or three days, shade the plants till they have taken root, when admit the sun more freely, yet only by degrees from day to day, till they can bear it fully without flagging much. Give air daily, in temperate weather, by tilting the edge of the glasses on the south side, an inch or two; but in the present stage of the plants shut close at night. Cover with mats till morning, constantly keeping the glasses over. Give occasional moderate waterings with aired water. Cover in the day time with mats in bad weather, or heavy or cold rains; and continue the night covering until confirmed summer in July. Meanwhile attend to the heat of the bed; if this be declined, so that the minimum temperature be not 65° at night, with the aid of matting, line the sides with hot dung, covered with a layer of mould. The revived heat from the linings will forward the plants in fruiting, while the earth at top will enlarge the surface for the runners, and the bed for the roots. When the runners have extended considerably and filled the glasses, they must be trained out. Accordingly, at the beginning of June, in favourable settled warm weather, train out the runners, cutting away dwindling and useless crowding shoots; then the glasses must be raised all round, 2 or 3 inches, upon props to remain day and night. Cover with mats in cold nights and bad weather, but first arch the bed

over with rods or hoop-bands to support the mats. Apply moderate waterings as necessary in the morning or afternoon. Oiled paper frames, formed either archwise, or with 2 sloping sides, about 2 feet or 2½ feet high, and of the width of the bed, are very serviceable in this stage. Some persons use them from the first, under a deficiency of hand-glasses. But the proper time for having recourse to them, is when the plants have been forwarded in hand-glasses till the runners require training out beyond the limits of the glasses, some time in June; then removing the glasses, substitute the oiled frames, as these paper screens will entirely afford protection from heavy rains or tempests, as well as from nocturnal cold, and also screen the plants from the excessive heat of the sun, while, being pellucid, they admit its influence, of light and warmth effectually. Give proper admission of free air below, and occasionally watering.

A melon, says Mr. C. Williams, is the richest and most highly-flavoured of all the fleshy fruits. It was freely used in early times, and has been long raised in our own country. Here and in France it is grown as a luxury, but in some parts of the East it is the chief necessary of life. Niebuhr, the celebrated traveller, says, "Of pumpkins and melons, several sorts grow naturally in the woods, and serve for feeding camels; but the proper melons are planted in the fields, where a great variety of them is to be found, and in such abundance that the Arabians of all ranks use them, for some part of the year, as their principal article of food. They afford, also, a very agreeable liquor. When the fruit is nearly ripe, a hole is pierced into the pulp, then stopped with wax, and the melon is left upon the stalk. Within a few days after, the pulp is, in consequence of this process, converted into a delicious liquor." To this Mr. Southey alludes when he says:—

" Whither is gone the boy?
He had pierced the melon's pulp,
And clothed with wax the wound;
And he had duly gone at morn,
And watched its ripening rind;
And now all joyfully he brings
The treasure now matured."

Of melons there is a great variety, and the number is constantly increasing. In Persia twenty sorts are known; the finest grow in Khorasan. The fruit there is so large that two or three melons are a full load for a man.

The following lines are from a "Hymn to Spring" by Wilson, author of the "Isle of Palms.—

——————— Ye fair Trees,
How are ye changed, and changing while I gaze!
It seems as if some gleam of verdant light
Fell on you from a rainbow; but it lives
Amid your tendrils, brightening every hour
Into a deeper radiance. Ye sweet Birds,
Were you asleep through all the wintry hours,
Beneath the waters, or in mossy caves?
There are, 'tis said, birds that pursue the spring,
Where'er she flies, or else in death-like sleep
Abide her annual reign, when forth they come
With freshen'd plumage and enraptured song,
As ye do now, unwearied choristers,
'Till the land ring with joy. Yet are ye not,
Sporting in tree and air, more beautiful
Than the young lambs, that from the valley-side
Send a soft bleating like an infant's voice,
Half happy, half afraid! O blessed beings!
At sight of this your perfect innocence,
The sterner thoughts of manhood melt away
Into a mood as mild as woman's dreams.
The strife of working intellect, the stir
Of hopes ambitious; the disturbing sound
Of fame, and all that worshipp'd pageantry
That ardent spirits burn for in their pride,
Fly like disparting clouds, and leave the soul
Pure and serene as the blue depths of heaven.
Now is the time in some meek solitude
To hold communion with those innocent thoughts
That bless'd our earlier days; to list the voice
Of conscience murmuring from her inmost shrine
And learn if still she sing the quiet tune
That fill'd the ear of youth. If then we feel,
That 'mid the powers, the passions, and desires
Of riper age, we still have kept our hearts
Free from pollution, and 'mid tempting scenes
Walk'd on with pure and unreproved steps,
Fearless of guilt, as if we knew it not;
Ah me! with what a new sublimity
Will the green hills lift up their sunny heads,
Ourselves as stately: smiling will we gaze,
On the clouds whose happy home is in the heavens;
Nor envy the clear streamlet that pursues
His course 'mid flowers and music to the sea.
But dread the beauty of a vernal day,
Thou trembler before memory! To the saint
What sight so lovely as the angel form
That smiles upon his sleep! The sinner veils
His face ashamed,—unable to endure
The upbraiding silence of the seraph's eyes!

Reseda odorata.

RESEDA ODORATA.—THE MIGNIONETTE.

CLASS XI. DODECANDRIA.—ORDER III. TRIGYNIA.

NATURAL ORDER, RESEDACEÆ.—THE MIGNIONETTE TRIBE.

LEAVES lanceolate, bluntish, entire or trifid, calyx 6-parted, equal in length to the petals, which are finely cleft into many club-shaped divisions: the lowest two simple; capsules 3-toothed. Native of the North of Africa, Egypt, &c. Plant diffuse, with a few hairs on the stems. Flowers with yellowish-white petals and saffron anthers, disposed in loose racemes. The two upper petals and the two lateral ones are finely fringed, the two lower ones are very narrow. "The *Mignionette*," observes Mr. DON, "is a well-known and universal favourite. The flowers are highly odoriferous, and there are very few to whom this odour is offensive. The plant in pots is in great demand in London for rooms and placing in balconies, and forms for these purposes, an extensive article of culture among florists and market gardeners. The seeds are either sown in pots, or transplanted into pots, 4 or 6 plants to a pot 4 inches in diameter. To obtain plants for flowering from December to February, a sowing should be made in July, in the open ground, and the plants potted in September. The crop for March, April, and May, should be sown in pots not later than the 25th of August; the plants from this sowing will not suffer from exposure to rain whilst they are young; they may however, be protected from early frosts, like the winter crops; they are to be thinned in November, leaving not more than 8 or 10 plants in a pot, and at the same time the pots should be sunk 3 or 4 inches in some old tan or coal-ashes, and should be covered with a frame, which it is best to place fronting the west, for then the lights may be left open in the evening, to catch the sun whenever it sets clear. The third, or spring crop, should be sown in pots, not later than the 25th of February. These must be placed in a frame, on a gentle heat; and as the heat declines, the pots must be let down three or four inches into the dung-bed, which will keep the roots moist, and prevent their leaves turning brown from the heat of the sun in April and May. The plants thus obtained, will be in perfection by the end of May, and be ready to succeed those raised by the autumnal sowing."

The Tree Mignionette should be propagated from seeds sown in spring; it may also be increased by cuttings, which strike root readily. The young plants should be potted singly into small pots, and brought forward by heat on a gentle hot-bed, but they will grow well without artificial heat. As they advance, they should be tied to a stick, taking care to prevent the growth of smaller side shoots, by pinching them off, but allowing the leaves of the main stem to remain on for a time. When they have attained the height of ten inches or more, according to the fancy of the cultivator, the shoots must be suffered to extend themselves from the top, but must be occasionally stopped at the ends, to force them to form a bushy head, which by the autumn will be eight or nine inches in diameter, and covered with bloom. Whilst the plants are attaining the proper size, they should be shifted progressively into larger pots, and may be ultimately left in those of about six inches in diameter at the top.

"The *Reseda*," says my brother in his outlines of Botany, "were used by the Romans as poultices to allay irritation, and, from their supposed influence in assuaging pain, their common generic designation has been derived. *R. luteola* is the dyer's weld, which was formerly in great esteem for imparting a beautiful yellow colour to cotton, linen, silk, and woollen goods. Blue cloths dipped in this dye-stuff become green; and it is from the weld that the yellow pigment called Dutch pink is made. This is one of the first plants which grows on the heaps of rubbish that are thrown out of coal-pits. Linnæus observed that the nodding spikes of *R. luteola* follow the course of the sun in their nutation, even when the day is cloudy, pointing eastward in the morning, south at noon, towards the west at sunset, and due north at night.

Reseda odorata is the mignionette, one of our most cherished and deservedly favorite domestic plants. It has not been introduced into this country more than three quarters of a century, but it quickly established itself in universal favor, and has been for some years cultivated most extensively in the environs of the metropolis; and, from the abundance in which it is supplied to the inhabitants of London, the streets are often rendered redolent with its fragrance. *R. arborescens*, the tree mignionette, is a variety which has been rendered suffruticose by preventing the early development of its blossoms. In France this variety is more encouraged than here, and instances are known in which the stems have become woody, and exceeded an inch in circumference."

We are indebted for the following passage, to the Flora Domestica:—

This plant is supposed to be an Egyptian, and to have been brought hither from the South of France, where it is called *réséda d'Egypte*, and *herbe d'amour* [love-flower.] A French appellation, derived from the Spanish, *minoneta*, prevails here over its classical one. It is a favourite plant, very fragrant, and has well justified this affectionate name, Mignonette, or Little-darling: its sweetness wins all hearts.

"The luxury of the pleasure-garden," says Mr. Curtis, "is greatly heightened by the delightful odour which this little plant diffuses; and as it grows more readily in pots, its fragrance may be conveyed into the house. Its perfume, though not so refreshing perhaps as that of the Sweet-briar, is not apt to offend the most delicate olfactories. It flowers from May to the commencement of winter."

People have not been satisfied, however, with growing this little darling in pots; it is more frequently seen cradled in the sunshine, in boxes the whole length of the window it is placed in.

——"the sashes fronted with a range
Of orange, myrtle, or the fragrant weed,
The Frenchman's darling."

Cowper.

The seeds may be sown in April, and will grow very well in the open air, although it will not flower so early as when raised in a hot-bed: they will, however, be much stronger. If sheltered in the winter, it will continue flowering most part of the year, but will not be so strong the second year as the first. It is generally an annual. The earth should be kept moderately moist.

During this month* Nature seems to experience a second spring. Several trees, particularly the oak and elm, put forth shoots and new leaves, enlivining the sombre woods. The hedges assume a lighter green; and if their leaves have been devoured in the spring by caterpillars, as is sometimes the case, they are now completely reclothed in the most delicate foliage. The ground already experiences the effect of the shortening days. The drought occasioned by the intense heat and long days of July has abated; cool nights, dews, and occasional showers restore the mown fields and sunburnt pastures to a degree of verdure, and reanimate the remaining flowers. The small blue campanula, wild scabious, blue chicory, the large white convolvulus, hawkweeds, and the *Calluna vulgaris*, or common heath, still adorn wastes, fields, and waysides. The pink-and-white convolvulus has been one of the chief ornaments of summer, flowering in the dryest spots, where all around is brown from extreme drought, with cheerful beauty. A few clusters of honeysuckles may yet be seen, here and there, on the hedges. And the antirrhinum linaria, or common toad-flax, is in full flower in the thickets.

Linnæus compares the perfumes of mignionette to those of ambrosia: and it is sweeter and more penetrating at the rising and setting of the sun than at noon.

The mignionette has found its way into the armorial bearings of an ancient Saxon family; and the following romantic story is said to have introduced this fragrant little flower to the Pursuivant at Arms;—

"The Count of Walstheim was the favoured aspirant for the hand of Amelia de Nordbourg, a young lady possessing all the charms requisite for the heroine of a modern novel, excepting that she delighted in exciting jealousy in the breast of her intended lord. As she was the only child of a widowed mother, a female cousin, possessing but little personal beauty, and still less fortune, had been brought up with her from infancy as a companion, and as a stimulus to her education. The humble and amiable Charlotte was too insignificant to attract much attention in the circles in which her gay cousin shone with so much splendour, which gave her frequent opportunities of imparting a portion of that instruction she had received to the more humble class of her own sex. Returning from one of these charitable visits, and entering the gay saloon of her aunt, where her exit or entrance was scarcely noticed, she found the party amusing themselves in selecting flowers, whilst the Count and the other beaux were to make verses on the choice of each of the ladies. Charlotte was requested to make her selection of a flower; the sprightly Amelia had taken a rose, others a carnation, a lily, or the flowers most likely to call forth a compliment; and the delicate idea of Charlotte, in selecting the most humble flower, by placing a sprig of mignonette in her bosom, would probably have passed unnoticed, had not the flirtation of her cousin with a dashing colonel, who was more celebrated for his conquests in the drawing-room than the battle-field, attracted the notice of the Count, so as to make his uneasiness visible, which the amiable Charlotte, ever studious of Amelia's real happiness, wished to amuse, and to call back the mind of her cousin, demanded the verse for the rose. The Count saw this affectionate trait in Charlotte's conduct, took out his pencil and wrote for the rose,

Elle ne vit qu'un jour, et ne plait qu'un moment,

which he gave to the gay daughter, at the same time presenting the humble cousin with this line on the mignonette:

Ses qualités surpassent ses charmes.

Amelia's pride was roused, and she retaliated by her attention to the colonel, which she carried so far as to throw herself into the power of a profligate, who brought her to ruin. The Count transferred his affections from beauty to amiability; and rejoicing in the exchange, and to commemorate the event which had brought about his happiness, and delivered him from a coquette, he added a branch of the sweet reseda to the ancient arms of his family, with the motto,

Your qualities surpass your charms."

* William Howitt's Book of the Seasons, (August,) p. 228.

Viscum album.

VISCUM ALBUM.—COMMON WHITE MISTLETOE.

CLASS XXII. DIŒCIA.—ORDER VI. TETRANDRIA.

NATURAL ORDER, LORANTHEÆ.

STEM much branched, forked: with sessile, intermediate heads of about 5 flowers; branches terete; Leaves obovate lanceolate, obtuse, nerveless. Natives of Europe, parasitical on trees, especially on the apple tree and hawthorn, but it is said also to have been found growing on the lime tree, oak, American locust tree, elm, fir, pear tree service, almond, white willow, walnut, &c. Viscum album of Thunb. and Walt. are distinct from this. Root hard, incorporated deep with the wood of the tree on which it grows, without any radicles, as in all the other species of this genus as well as of *Loranthus* and the allied genera. Leaves permanent, stiff, with parallel ribs. Flowers yellowish. Berries white, pellucid, the size of a currant, sweet, very glutinous internally, serving to make the best bird-lime, when boiled with a small portion of vegetable oil. *Loranthus Europæus* seems to be the original and most common mistletoe; ἶξος of the Greeks, which grows usually on some kind of fir tree. But our Viscum album is sometimes found in Greece, though rarely, growing on the oak; and this has been preferred from the most remote antiquity. Hence when the superstitions of the East travelled westward, our Druids adopted a notion of the mistletoe of the oak being more holy or efficacious in conjurations or medicine, than what any other tree afforded, the *Loranthus* or ordinary mistletoe not being known here. This superstition actually remains, and a plant of *Viscum Album* from an oak is preferred by those who rely on virtues, which perhaps never existed in any mistletoe whatever. The Druids sent round their attendant youths with branches of mistletoe to announce the entrance of the new year; and something like the same custom is still continued in France. In England branches of it are hung up in most houses at Christmas, along with other evergreens. The berries are devoured by several birds of the thrush kind, and especially by the mistletoe thrush. The common mistletoe is not difficult to propagate by sticking the berries on thorn or apple trees, after a little of the outer bark has been cut off, and tying a shred of mat over them, to protect them from the birds.

Professor Burnett says, "*Loranthus Europæus* is in the southern parts of Europe a very frequent parasite on the oak, and indeed inhabits no other tree, while the viscum is very seldom found thereon, being chiefly confined to the hawthorn and the apple. This circumstance has led some naturalists to suppose the *Loranthus* to have been the mistletoe of the Druids, and to believe, as it is not now indigenous to Britain, that when Druidism was suppressed, every vestige of that stupendous superstition was so completely swept away, that even the sacred plant was extirpated here. Such a speculation, however, seems so wild, that the following is offered in its stead:—

The mistletoe, although seldom found on the oak, is not exclusively a parasite of other trees, and its rarity on the former not improbably led to the preference which the old botanists, as well as the Druids, gave to the *Viscus quercûs* over the *Viscus oxyacanthi*, when these vegetables were held in much repute in medicine. Hence the very circumstance of a *search* being made for quercine mistletoe, in an age when these islands were covered with forests of oak, is opposed to the idea of the *Loranthus* being the plant in question: had it then been indigenous here, the oak would have been its common, if not exclusive habitat, and this confirms the belief that the *Viscum* was the branch which the Druids went with such solemnity to cull.

The common mistletoe is slightly astringent, and is occasionally resorted to in our provinces as a cure for epilepsy or the falling sickness; but trust in its sanative powers is at as low an ebb as credence in its moral efficacy. The all-health and the yule-log of the Druids are now only regarded as means of Christmas comfort for the old and pastime for the young.

The berries of these plants abound in a viscid matter, from which bird-lime is often made.

Old Gerarde declares that "the leaves and berries of Misselto are hot and dry, and of subtill parts: the bird-lime is hot and biting, and consists of an airy and watery substance, with some earthy quality: for according to the iudgement of *Galen* his acrimony overcommeth his bitternesse; for if it be vsed in outward applications it draweth humors from the deepest or most secret parts of the body, spreading and dispersing them abroad, and digesting them.

With Frankincense it mollifieth malitious impostumes, being boiled with unslaked lime, or with *Gagate lapide* or *Asio*, and applied, it wasteth away the hardnesse of the spleen.

With Orpment or *Sandaracha* it taketh away foule ilfauored nailes, being mixed with vnslaked lime and wine lees it receiueth greater force. It hath been most credibly reported vnto me, that a few of the

berries of Misseltoe bruised and strained into oile and drunken, hath presently and forthwith rid a grievous and sore stitch."

In the history of Greece, says the author of "the Vegetable World," we meet in very early times with the famous oracle of Jupiter, that is, a place where it was said his voice was heard, at the oaks of Dodona. And, in Gaul and Britain, we find the highest regard paid to this tree and its mistletoe, under the direction of the Druids—the oak-prophets, or priests. They thought the mistletoe was sent from heaven, as a sign that God had chosen the tree on which it grew; and, though rarely found, it was treated, as soon as discovered, with great ceremony. They styled it, indeed, the curer of all ills, and, having prepared under the tree feasts and sacrifices, brought to it two white bulls, whose horns were then, for the first time, tied. After this, the priest, attired in a white robe, ascended the tree, and, with a golden pruning-hook, cut off the misletoe, which was received in a white sheet. Victims were then sacrificed, with many prayers for the blessing of God on his own gift. And, says Parkhurst, "Is it possible for a Christian to read this account without thinking of Him who was the desire of all nations, of the man whose name was the branch, who had indeed no father on earth, but came down from heaven; was given to heal all our ills; and, after being cut off through the divine counsel, was wrapped in fine linen, and laid in the sepulchre for our sakes?"

The following extract is from "The Sentiment of Flowers,"

> "All your temples strow
> With laurel green, and sacred mistletoe."
>
> GAY.

The mistletoe is a parasitical plant, growing chiefly on the summit of fruit trees, though the proud oak sometimes becomes its slave, and yields its own substance to support it. "The Druids sent round their attendant youths with branches of the mistletoe, to announce the entrance of the new year;" and something like this custom is said still to be continued in France; and our English friends, who maintain the Christmas customs and gambols of our ancestors, need not that we should remind them of the part it plays in those festivities. The Druids had a species of adoration for a weakness so superior to strength. The tyrant subjugator of the oak appeared to them alike formidable to men and gods; and they related the following story in support of their opinion:—"One day, Balder told his mother Friga, that he had dreamed he should die. Friga conjured the elements—earth, air, fire, and water; metals, maladies, animals, and serpents, that they should do no evil to her son; and her conjurations were so powerful that nought could resist them. Balder, therefore, went to the combat of the gods, and fought in the midst of showers of arrows without fear. Loake, his enemy, wished to know the reason; he took the form of an old woman, and sought out Friga. He addressed her thus: 'In the midst of our fight, the arrows and rocks fall on your son without hurting him.' 'I believe it,' replied Friga, 'all those substances are sworn to me; there is nothing in nature which can hurt him. I have obtained this favour from every thing which has power. There is only one little plant that I cared not to ask, because it appeared too feeble to injure; it was growing upon the bark of an oak, with scarcely any root; it lives without soil, and is called mistletoe. So spake Friga. Loake immediately ran and found the plant, and entering the assembly of the gods, while they were fighting against the invulnerable Balder (for their games are combats,) he approached the blind Heda. 'Why,' said he, 'do you not contend with the arrows of Balder?' 'I am blind,' he answered 'and have no arms.' Loake presented to him the mistletoe, and said 'Balder is before thee.' The blind Heda discharged the arrow, and Balder fell pierced and slain. Thus, the invulnerable offspring of a goddess was killed by an arrow of mistletoe, shot by a blind man." Such is the origin of the respect borne by the Gauls towards this shrub.

This plant being yellow, Virgil compares it to the golden bough of the sybil.

> 'Quale solet sylvis brumali tempore viscum
> Fronde virere novâ, quod non sua seminat arbos,
> Et croceo fœtu teretes circumdare truncos;
> Talis erat species auri frondentis opacâ
> Ilice.'*

As the mistletoe, which its own tree does not sow, grows green with new foliage amid the woods in winter, and surrounds the round trunks with its saffron fruit, such was the appearance of the budding gold on the dark ilex.

In the language of flowers, the Mistletoe signifies *I surmount all difficulties.*

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* Æn. vi. l. 205.

Aconitum Napellus.

ACONITUM NAPELLUS.—COMMON MONK'S-HOOD, OR WOLF'S BANE.

Class XIII. POLYANDRIA.—Order III. TRIGYNIA.

Natural Order, RANUNCULACEÆ.—THE CROW-FOOT TRIBE.

This species of Aconite, (which has frequently been mistaken for the A. *neomontanum*, so strongly recommended by Baron Stoerck,) is one of our most active vegetable poisons, and is still retained in the London and Edinburgh Pharmacopœias. It is very generally cultivated in gardens as an ornamental plant; but grows spontaneously in the alpine forests of Sweden, France, Switzerland, Austria, Carniola, and other parts of Europe. It is a doubtful native with us, but Smith found it abundant on the banks of a brook running into the river Teme, in Herefordshire, and also by the side of the larger stream; he has, therefore admitted it into the English Flora.

The root is simple, or fusiform, and woody. The stem is erect, simple, clothed with leaves, rises to the height of two or three feet, and is terminated by an elegant cylindrical spike of flowers, which are developed in May and June. The leaves are palmated and divided into five wedge-shaped segments; these are deeply cut and toothed, and stand alternately upon long-channelled footstalks, which become gradually shorter as they approach the top of the stem, so that the upper leaves are nearly sessile; the whole are dark green above, paler underneath, smooth and shining. The flowers which are of a deep violet colour, proceed alternately from the axis of the spike, and are supported upon short pedicles. Two small bracteæ are placed on the flower-stalk, at a short distance from the flower. The petaloid sepals are five; the uppermost helmet-shaped covering the petals or nectaries; the lateral ones broad, roundish; the lower oblong, and bending downwards. The petals, usually called nectaries, are two, concealed under the upper sepal; each nectary is furnished with a hooked spur, with the lip lanceolate, revolute and bifid. The stamens are filiform, converging, purple at the upper part, and supporting whitish anthers. The germens are from three to five, with simple reflected stigmas. The capsules, which correspond in number with those of the germens, contain numerous angular-wrinkled seeds.

There are several varieties with white, rose-coloured, and variegated corollas. Those with blue flowers are said to be the most powerful. The variety called *pyramidale* is most commonly cultivated in English gardens, on account of the beautiful appearance of its long spike of flowers, which are sometimes above two feet in length. The Aconitum *cammarum* is sometimes confounded with the present species, but the flowers are of a paler blue, the helmet larger, and the plant is much taller; frequently attaining the height of six feet.

Its deleterious effects were well known to the ancients, who regarded it as the most violent of all poisons, being unacquainted with those of mineral origin, and fabled it to be the invention of Hecate, who caused it to spring from the foam of Cerberus. Aconite is said to have been the principal ingredient in the poisonous cup that was mingled by Medea for Theseus; and it was the poison employed to execute the barbarous law in the island of Ceos, which condemned to death all who were no longer useful to the state. Hence the old men who were too feeble to defend themselves, were deemed useless, and presented with a draught of the juice of Aconite.

Qualities and Chemical Properties.—Although the root is the most powerful, every part of the plant is poisonous, for on chewing a small quantity of the leaves, a sensation of numbness will be felt in the lips and tongue which continues for some hours. Should a larger quantity be used, a pungent heat in the palate and fauces will be felt, which will be succeeded by general tremors.

The taste is moderately bitter; the odour faint and narcotic. The active principle is supposed to be an alkaloid, first discovered by Pallas, and subsequently examined by Brandes, who has named it *aconitia*.

Symptoms.—The aconite is one of that class of poisons which acts through the medium of the nervous system, and can produce death without being absorbed. When taken in an overdose the following symptoms quickly ensue: viz. intense heat, and numbness of the throat and mouth, violent nausea, giddiness, convulsions, violent purgings, mania, and cold sweats; which terminate in death.

It appears that M. Bichat was the first who ascertained that "the brain is not directly necessary to the action of the heart, and that when the functions of the brain are destroyed, the heart continues to contract for some time afterwards, and then ceases, only in consequence of the suspension of respiration, which is under the influence of the brain."

Dr. A. Thomson says, "the powdered leaves have at first a sweetish taste, which, however, is soon

followed by an acrid burning sensation, accompanied with a profuse salivation; and if an extract of them be given without the greatest caution, it acts first on the stomach and then on the nervous system; producing vomiting, hypercatharsis, vertigo, cold sweats, delirium, and convulsions which terminate in death. If placed on the eyelids it causes tears to flow, but it produces no sensation of heat, and when the powder is sprinkled upon an ulcer, it causes neither heat nor pain."

It is asserted, that the effluvia arising from the herb in full flower, have so overpowered some persons as to produce loss of sight for a day or two; attended by faintings, swooning fits, and other untoward symptoms: and the juice, according to Snodder, applied to a wounded finger, affected the whole system; not only producing pains in the hand and arm, but cardialgia, great anxiety, sense of suffocation, syncope, &c. The wounded part sphacelated also, prior to suppuration taking place.

But although such are said to be the effects of the leaves and exhalations from the flowers, the roots are unquestionably the most powerful part of the plant; and as a new root is formed each year by the side of the old one, the properties of which are very much diminished, if not entirely destroyed, by the exhaustion of growth, great care should be taken in the selection.

Linnæus says, the A. *napellus* is fatal to kine and goats, especially when they come fresh to it; but that it does no injury to horses, who eat it only when dry. He also relates in the Stockholm Acts that an ignorant surgeon having prescribed the leaves, and who, on his patient refusing to take them, took a dose himself, died in consequence. The following case is a further example of similar ignorance being similarly fatal to another surgeon, and they are curious, as medical men are not proverbially famous for taking physic.

A person having eaten some of the leaves of the A. *napellus*, became maniacal and the surgeon who was called to his assistance declared, that the plant was not the cause of his disorder; and to convince the company that it was perfectly innocent, he ate freely of its leaves, and soon after died in great agony.—(Mordus in K. Vet. Acad. 1739, p. 41.)

Dr. Willis, in his work, De Anima Brutorum, gives also another instance of a man who died in a few hours from eating the young leaves of this plant in a salad. He likewise exhibited all the symptoms of mania.

Dissection throws no light on the effects of Aconite.

The native Indians use it to poison the water tanks, in order to impede the progress of an army. An attempt of this kind was made at Hotoura during the Napal war, but it was discovered in time to save the soldiers. They also use it for poisoning spears, darts, and arrows. Among other characteristic traits of the iron age, Ovid tells us that

> Lurida terribiles miscent aconita novercæ:
> "Terrible stepmothers mingle the lurid wolf's bane."

Medical Properties and Uses.—The Aconite thus invested with terror, has, however, as Don observes, been so subdued, and reduced to such a manageable state, as to have become a very powerful remedy in some of the most troublesome disorders incident to the human frame. It is to Baron Stoerck that we are principally indebted for our knowledge of this potent medicine; which, according to his account, is diuretic, as well as diaphoretic, and narcotic. He administered it for intermittent fevers, chronic rheumatism, gout, exostosis, paralysis and schirrous, and narrates many well-marked cases of these diseases, in which it was eminently successful. He appears to have been well acquainted with the potency of the drug he was administering; and therefore recommended small doses to be given at first, which were very gradually increased. His observations led to its employment in other diseases, and it has been found useful; but in consequence of its uncertain powers, alarming symptoms have been produced, which have caused it to fall into general neglect. Dr. Davy, however, in a letter to Dr. Paris, says: "In some cases of chronic rheumatism, and in some of intermittent fever, it has had a beneficial effect not to be mistaken; the dose has been from one to two grains." Its diaphoretic effect he did not observe. We have had no experience of the internal administration of Aconite, but the extract applied as a plaster, is a very useful application to rheumatic affections. It is usual to combine either the powder or the extract, with some antimonial preparations, calomel, camphor, ipecacuanha, guaiacum, &c. The extract is most certain in its effects; and as well as the powder must be given in small doses at first.

Doses.—Of the extract, from half a grain to two.
Of the powder, from two to ten grains.

Off. prep.—Extractum Aconiti. *L. E.*

In Flower Language, Monk's Hood denotes Knight Errantry.

> By all those token flowers that tell,
> What words can ne'er express so well.———*Byron.*

Morus nigra

MORUS NIGRA.—THE COMMON MULBERRY TREE.

CLASS XXI. MONŒCIA.—ORDER IV. TETRANDRIA.

NATURAL ORDER, ARTOCARPEÆ.—THE BREAD FRUIT TRIBE.

THE Mulberry-tree grows naturally on the coast of Italy and in Persia; but has been cultivated in England since the end of the sixteenth century. It is generally grown as a standard, and flourishes best in a rich deep light soil. The flowers are produced in June, and the fruit ripens in September.

The tree is not lofty, is much branched, and covered with a rough brown or greyish bark. The leaves, which stand upon short foot-stalks, are about five inches long, and four inches and a half broad; numerous, cordate, serrated, rough, of a deep green colour on the upper surface, and paler and tomentose underneath. Both the male and female flowers are produced on the same plant. The *male* flowers are disposed in close cylindrical catkins, about an inch and a half long, and composed of several florets; each floret consists of a calyx divided into four deep, ovate, concave segments, inclosing four awl-shaped filaments, having simple anthers. The *female* flowers consist of a calyx, which is permanent, resembling that of the male; and both are destitute of a corolla; the germen is roundish and supports two reflexed styles furnished with simple stigmas. The fruit is a large succulent false berry, or more properly a compound berry, composed of a number of smaller berries, or *acini*, each containing a single seed, and attached to a common receptacle. Fig. (*a*) represents the male florets.

There are several species of the Mulberry; the M. *alba*, being the one which is cultivated to feed the silk-worm, the silk of which is more coarse when they are fed on the M. *nigra*. Another variety is cultivated in Japan, for the sake of its inner bark, from which paper is manufactured. This plant has lately been generically distinguished from the Mulberry, and is now called the *Broussonetia papyrifera*. The generic name *Morus* is derived immediately from the Greek Μορεα, and that from the Celtic *Mor*, which signifies black, the most common colour of the fruit. *Morus tinctoria* affords the fustick wood of the dyer, of which considerable quantities are brought into Europe.—*Medical Botany.*

The black mulberry has been known from the earliest records of antiquity. It is twice mentioned in the Bible; viz. in the Second Book of Samuel, and in the Psalms. The same difficulty however exists in tracing its history distinctly from that of the white mulberry, as in its geography, and it is only when spoken of as a fruit tree, or when its colour is decidedly mentioned, that we can be sure which species is meant. Ovid however, evidently points out the black mulberry as the one introduced in the story of Pyramus and Thisbe; and Pliny seems also to allude to it, as he observes that there is no other tree that has been so neglected by the wit of man, either in grafting it or giving it names, an observation which holds good to the present day, respecting the black mulberry, as it has only one trifling variety, or rather variation, and no synonyme; whereas there are numerous varieties of M. alba. Pliny adds, "Of all the cultivated trees the mulberry is the last that buds, which it never does until the cold weather is passed, and it is therefore called the wisest of trees. But, when it begins to put forth buds, it despatches the business in one night, and that with so much force, that their breaking forth may be evidently heard." The black mulberry was first brought to England in 1548, when some trees were planted at Syon, one of which at least is still in existence. Others say that the first mulberry-tree planted in England was in the garden at Lambeth Place, by Cardinal Pole, 1555. The tree is mentioned by Tusser, and also by Gerard, who describes both the black and the white mulberry tree being cultivated in his time. The royal edict of James Ist, about 1605, recommending the cultivation of silk-worms, and offering packets of mulberry seeds to all who would sow them, no doubt rendered the tree fashionable, as there is scarcely an old garden or gentleman's seat, throughout the country, which can be traced back to the seventeenth century, in which a mulberry tree is

not to be found. It is remarkable, however, that, though these trees were expressly intended for the nourishment of silk-worms, they nearly all belong to Morus *nigra*, as very few instances exist of old trees of Morus alba in England. Shakespeare's mulberry is referable to this period, as it was planted 1609, in his garden at New Place, Stratford; and it was a black mulberry, as Mr. Drake mentions, a native of Stratford, who in his youth, remembered frequently to have eaten of the fruit of this tree; some of its branches hanging over the wall which divided that garden from his father's.

The mulberry was dedicated by the Greeks to Minerva, probably because it was considered the wisest of trees, and Jupiter the protector was called Morea. Ovid has celebrated the black mulberry tree in the story of Pyramus and Thisbe; where he tells us that its fruit was originally snow-white; but that when Pyramus, in despair at the supposed death of his mistress, killed himself with his own sword, he fell dead under one of these trees; and when Thisbe, returning and finding him dead, stabbed herself also, their blood flowing over the roots of the tree, was absorbed by them, and gave its colour to the fruit:—

"Dark in the rising tide the berries grew,
And white no longer, took a sable hue,
But brighter crimson, springing from the root
Shot through the black, and purpled o'er the fruit."

Cowley describes the black mulberry as being used, in his time, both for its fruit and leaves:—

'But cautiously the mulberry did move,
And first the temper of the skies would prove,
What sign the sun was in, and if she might
Give credit yet to Winter's seeming flight:
She dares not venture on his first retreat,
Nor trusts her fruit and leaves to doubtful heat;
Her ready sap within her bark confines,
Till she of settled warmth has certain signs,
Then making rich amends for the delay,
With sudden haste, she does her green array:
In two short months, her purple fruit appears,
And of two lovers slain the tincture wears.
Her fruit is rich, but she doth leaves produce,
Of far surpassing worth and noble use.

Cowley on Plants.

The destruction of Shakespeare's mulberry tree in 1756, by its then proprietor, Mr. Gastrell, gave rise to several songs and other pieces of poetry; but they rather relate to the individual tree than to the species.

Loudon's Arboretum Britannicum.

Of all the trees in the orchard the mulberry doth last bloome, and not before the cold weather is gone in May (therefore the old writers were wont to call it the wisest tree) at which time the Silke worms do seeme to reuiue, as hauing then therewith to feed and nourish themselves, which all the winter before do lie like small graines or seeds, as knowing their proper times both to perform their duties for which they created, and also when they may haue wherewith to maintaine and preserve their own bodies, vnto their businesse aforesaid.

The berries are ripe in August and September. *Hegesander* in Athenæus, affirmeth, that the mulberry trees in his time did not bring forth fruit in twenty yeares together, and that so great a plague of the gout then reigned and raged so generally, as not only men, but boies, wenches, and women were troubled with that disease.—*Gerard's Herbal.*

In England the fruit is generally eaten at desserts; and it is considered of a cooling aperient nature when ripe. It forms an agreeable sweetmeat though it is not generally used for that purpose; and Evelyn says that, mixed with juice of cider apples, it makes a very strong and agreeable wine. Dr. Clarke mentions that he saw some Greeks in the Crimea employed in distilling brandy from mulberries; which he

describes as a weak but palatable spirit, as clear as water. A wine is also made from it in France; but it requires to be drunk immediately, as it very soon becomes acid. The root has an acrid bitter taste, and is considered excellent as a vermifuge, in doses of half a drachm in powder. The tree in every part contains a portion of milky juice, which being coagulated, is found to form a kind of coarse Indian rubber. In some parts of Spain, on Mount Etna, and in Persia, the leaves of this species are said to be preferred to those of the white mulberry for silk worms.—*Loudon's Arboretum Britannicum.*

Silk worms are hatched from eggs, laid during summer, by a kind of greyish moth; they are about as large as a grain of mustard seed, at first of a yellow colour, but afterwards of a blueish hue. From each of these comes a small black caterpillar; in about eight days its head grows larger, and it is seized with its first sickness, when its size increases; and in the course of a month, its weight is multiplied many *thousand-fold.* It then throws off its covering, not only that of the body, but of the feet, of the entire skull, and even of the mandibles, or jaws; which process may be seen by the unassisted eye, but, of course, more clearly through a magnifying glass. It is again attacked by sickness, after which it moults again; and when this has been repeated for the fourth time, the caterpillar is about one and a half or two inches long, devours its food most voraciously, and during ten days, increases rapidly in size. Its whole form is now remarkable; but the two very small apertures through which the worm draws its silky substance, are placed just beneath the jaw, and close to each other. It now ceases to feed on the mulberry leaves; its colour is now light green, with a mixture of a darker hue; and, in twenty-four hours, the material for forming its silk is digested, when its green colour disappears, its body acquires greater firmness and is somewhat lessened in size, and it finds some place for its work, and begins its cocoon. The substance of which the silk is composed is secreted in the form of a fine yellow transparent gum in two small separate vessels, which are wound as it were on two spindles in the stomach, and which, unfolded, are about ten inches long.

In three or four days, the cocoon is complete; the caterpillar then smears its surface with a gum like that which forms the silk itself (no doubt to shield the chrysalis from the rain,) a portion of which accompanies the silken filament through its entire length, and so completely is this done, that when, in order to reel the silk more easily, the balls are thrown into hot water, they float like bladders, and, unless the ball is imperfectly formed, the water does not penetrate the silk until it is nearly all unwound. When the ball is finished, the insect rests awhile, throws off its garb, and appears, when the cocoon is opened, something like a kidney bean in shape, or pointed at one end; having a smooth, brown skin, with its former covering lying by its side. It then sleeps from fifteen to thirty days, according to the climate. It then throws off its shroud, and appears as a large moth of a greyish white colour, with four wings, two eyes, and two black antennæ, or horns, seeks its mate, who deposits her eggs; and both in two or three days after, end their being. The quantity of silk in a cocoon is variously stated, and sometimes most absurdly exaggerated—thus Isward, an old author, says, it will measure in length six miles, or 10,560 yards; but Count Dandola tells us that silk-worms labours seldom exceed 625 yards; a great quantity for so short a life. Others consider the average length to be from 300 to 400 yards, and the weight to be about three grains.

The credit of drawing the slender filament from the cocoon of the silkworm is claimed by the Chinese. It is stated in their records, that they used the work of the silk-worm, two thousand seven hundred years before the Christian era; they represent the Empresses as surrounded by their women, engaged in hatching and rearing the little manufacturers, and in weaving their valuable produce; and they give the honour of doing this *first* to one who was named See-ling-she. A long time passed before it was known in England, and even then it was very slowly introduced. Soon after the Conquest, however, it was much used; and in 1251, when Alexander III. of Scotland, married Margaret, the daughter of Henry III. a thousand English knights appeared in garments of silk, which were thrown aside the next day for robes equally gorgeous and splendid. Silk was one time valued at Rome, at its weight in gold; and the Emperor Aurelian is said to have refused his Empress a robe of silk because it was so costly. Even when James VI. King of Scotland, came to assume the English crown, it was so scarce, that he was obliged to ask the Earl of Mar for the loan of a pair of silk stockings to wear before the English Ambassador, adding, "For ye would not, sure, that your

king should appear as a scrub before strangers." When the frame-work knitters of silk stockings petitioned Oliver Cromwell for a charter, they said, " the Englishman buys silk of the stranger for twenty marks, and sells him the same again for one hundred pounds." But now we buy three millions and a half pounds of raw silk from the stranger, employ half a million of our own people in the manufacture of it by the aid of machinery, and sell it to them and the stranger, at a price as low as that of the calico of half a century ago. To supply this one luxury to us, fourteen thousand millions of animated creatures yearly live, labour, and die! Still greater must be the number in China, where all, from the Emperor to the peasant, wear silk. A species of mulberry is cultivated in Japan for the manufacture of paper, and hence it is called the paper-mulberry. For this purpose it is raised in beds, as osiers are cultivated with us for the use of the basket maker and the cooper. When the leaves have fallen off, that is about the month of December, the shoots are cut down, divided into lengths of about three feet, bound into bundles, placed upright and close together in a copper, and boiled till the bark is completely loosened from the wood. Should they be dry before being subjected to boiling, they are prepared for that operation by maceration in water for twenty-four hours. After the rods are cold, the bark is divided lengthwise by a knife; stripped off, and dried for use. When about to be used, it is put into water till it is so much soaked that the external and coloured part of the bark can be separated. That being done, the bark is sorted, the strongest being set apart for the best and whitest paper, and the weaker for that of inferior quality; while of the refuse a very coarse brown paper is made. The sorted bark is then boiled till it becomes tender, that is till it easily separates with the fingers, and then it is washed for a longer or shorter time according to the quality of paper wanted. If strong writing-paper, the washing must be moderate, but if the colour is to be very delicate, and the texture soft and silky, the washing must be more prolonged. When properly washed, it is taken to a table and there reduced to a pulp, by beating with wooden mallets. When sufficiently reduced, it is brought to the requisite consistency with water; rice starch, and the mucilaginous infusion of manihot root, are added by way of size; and then the sheets of paper are formed, one by one, upon a table. collected into heaps, and pressed by a weight.

Charles Williams.

" May," says Peacham, " must be drawn with a sweet and amiable countenance, clad in a robe of white and green, embroidered with daffodils, hawthorns and blue-bottles." And May *has* a sweet and amiable face, in spite of the occasional frowns with which it is overclouded. A pleasant season it is for those who are capable of pleasing emotions. Yet there are some whose melancholy is increased by the gaiety of nature around them, and who feel it more easy to endure the grey sky and nipping blasts of December, than to enjoy the fragrant gales of June. The following lines seem inspired by a sentiment of this kind.

The winter fled, sweet May is here
The thrushes to the purple year
Their joyous tribute bring;
But ah! to me no joy returns,
In this cold heart no passion burns,
Life knows no second spring!

No more on me bright eyes shall shine,
Nor Susan more than half divine
Those plaintive ballads sing;
Nor wife, nor friend to cheer my way,
I live the solitary day,
Nor hope a second spring.

Then farewell every earthly dream,
Henceforth be mine a higher theme,
Upwards each thought take wing;
God of the just! my soul prepare
Thy blest abode with thee to share,
Be there my second spring!

QUALITIES.—Mulberries are inodorous, possess a sweet sub-acid taste, and yield a fine rich-coloured juice, which contains tartaric acid, jelly, and mucus.

MEDICAL PROPERTIES AND USES.—This fruit is very grateful to the parched mouths of fever-patients, but is apt to produce diarrhœa if eaten too freely. The syrup is used in gargles, on account of its acidulating properties, and its beautiful colour. According to Bergius, *the bark of the root* has been successfully administered in doses of half a drachm, to expel the tape-worm. He also asserts that it acts on the bowels.

OFF. PREP.—Syrupus Mori. *L.*

Agaricus campestris.

AGARICUS CAMPESTRIS.—THE COMMON MUSHROOM.

Class XXIV. CRYPTOGAMIA.—Order IV. FUNGI.

Natural Order, FUNGI.——THE MUSHROOM TRIBE.

Stem solid, white, cylindrical, two or three inches high, half an inch in diameter; curtain white; pileus white, changing to brown when whole, and becoming scurfy, convex fleshy, two or four inches in diameter liquefying in decay; gills loose, pinky red, changing to liver colour, in contact with the stem, but not united to it, numerous, irregular, some of the gills forked near the stem; others next the edge of the pileus. When the mushroom first makes its appearance, it is smooth and almost globular, and in this state it is called a button. This species is the best and most savoury of the genus. It occurs in parks and pastures in September. The true eatable mushroom is distinguished from the poisonous and unpleasant kinds by these marks; when young, it appears of a roundish form like a button, being white, and the fleshy part very white, when broken, the gills within being livid. As they grow larger, they expand their heads by degrees into a flat form, and the gills underneath are at first of a pale flesh colour; but as they stand long, become blackish.

The genus *Agaricus* is believed to contain upwards of a thousand different species. Sprengel enumerates only six hundred and forty-six; but this is much below the real number, as referred to by other authors.

The *A. semiglobatus, (Fig. A.)* is one of the most common, and, if Messrs. Brande and Sowerby's account be correct, the most deleterious of the tribe. It occurs in most parts of the kingdom, in exposed and elevated pastures, moist meadows and woods, from May to September. Dr. Greville says, it is extremely common in Scotland; and Mr. Curtis found it in great abundance about Peckham, Hornsey, and other places near London.

It generally grows singly, but sometimes springs up in clusters, especially on dunghills, or on those spots where dung has been thrown. The stipes, or stem, is from three to six inches in height, and two or three lines in diameter, pale yellowish, hollow, the tube being very small, and sometimes partly filled with a white pith; more or less crooked, somewhat incrassated towards the base, glutinous, furnished with a ring, and mostly dotted with black immediately beneath the pileus. The pileus is from half an inch to an inch and a half in breadth, of a pale reddish-orange, or straw-colour, in the full grown ones exactly hemispherical, rarely becoming in large specimens plano-convex, very glutinous, and smooth, hence the name *glutinosus* given to it by Curtis. The usual colour of the cap is reddish-orange, but when wet with rain it becomes browner and transparent, so that it sometimes appears as if striated. The flesh is thin and white. The lamellæ are numerous, fixed, horizontal, extending in a right line, or nearly so, from the margin of the pileus to the stipes, and beautifully mottled with the purplish black sporidia. With regard to this species, it may not be improper to remark, that the poisonous qualities usually ascribed to it, are still somewhat problematical.

In vol. iii. of the "London Medical and Physical Journal," cases are detailed by Mr. E. Brande, in which the species was partaken of by several individuals of one family, all of whom were saved by energetic and well-directed treatment. In vol. xx. of the same work, is the subjoined account, by Mr. Parrott, of Mitcham, in which it will be seen that death occurred from eating this fungus in three instances, and very alarming symptoms were produced in others.

"The family, which partook of this poison, consisted of William Attwood, aged 45 years; Eliza, his wife, 38; their daughters, viz. Mary, 14, Hannah 11, Sarah, 7, Eliza, 5.

"On Monday, the 10th inst. 1808, all ate stewed champignons, at one o'clock, which stew was made in an iron vessel, and consisted of the articles already specified, with the addition of butter, flour, pepper, salt, and water. Each of these parties, Hannah excepted, was supposed to have eaten more than half a pint. Within ten minutes after they had eaten their meal, they felt their spirits exhilarated, and the eldest daughter said to her mother, 'How funny you look!' All the parties continued cheerful till about six o'clock, when, having taken their tea, they were attacked with stupor, which was not of long continuance; this was soon succeeded by severe pains in the bowels, accompanied with violent vomiting, and copious purging, which continued till the following afternoon, when the patients were alarmed, and requested my attendance. Under these symptoms, it appeared that the first step to be taken, was to get rid of the poison; for which purpose, oily opening medicines were administered, and plentiful dilution with warm broth was recommended. This method of treatment appeared to promise success in the case of Mary, who had so far recovered on the following day, Wednesday, that she walked about a quarter of a mile from home; in the evening, however, the symptoms returned. On Thursday evening she became convulsed, and died on Friday morning at two o'clock.

"Eliza did not complain much of her sufferings, but became convulsed at the same time her sister Mary did, and died half an hour after her.

"Hannah only ate two spoonsful of the stew, as she did not like its flavour; this girl recovered after a severe vomiting and purging.

"Sarah never complained of pain in the head, but was continually suffering under extreme pain in the bowels, which was increased on pressure, but no tension existed. She died on Saturday morning in the same convulsed state as her sisters. Permission having been obtained to open one of the bodies, that of Sarah was examined, as she had suffered under the most excruciating pain in the bowels, but no appearance of disease was manifest in any of the abdominal viscera; the stomach was empty, and also the whole of the alimentary canal. On Friday, the 14th, the vomiting still continuing in the father and mother, it was thought proper to administer small doses of opium, but without effect; the effervescing draught was then given, which succeeded, but the pain in the bowels was thereby so much increased, that both regretted having taken it. During the progress of this unfortunate occurrence, the pulse in each of the patients was quickened, and varied from 100 to 120 in a minute, but was not sufficiently full to justify the use of the lancet; the tongue was parched and slightly streaked with white; the tunicæ conjunctivæ were not inflamed, and the parties were all perfectly sensible.

"A dog which had partaken of the stew died on Wednesday night, apparently in great agonies."

Agaricus bulbosus, (Fig. B.) One of the common poisonous native Agarics, abounding in woods in the autumnal months. It has a pungent odour, resembling that of horse-radish. The pileus is two or three inches broad, bright brown, or chestnut coloured, obtusely umbonate, thin at the margin, testaceous when dry, and brittle. The lamellæ are cinnamon-coloured, or tawny, three or four in a set, distant, and three or four lines broad, with rose-coloured sporidia, The stem is about four inches in height, solid, very thick, dullish red, bulbous, ovate, and in old specimens ferruginous at the base. The veil is annular, whitish, and fugacious. Withering's A. *bulbosus.* (*Bot. Arr.* v. 4. p. 271,) is a different plant.

On the continent a great many kinds of Fungi are used for culinary purposes.

"The A. cæsarea is a fungus possessed of some classic fame; it has been celebrated both by Juvenal and Martial; not so much, however, for its beauty, as for the traditional belief that it was in a dish of these mushrooms, which by the ancient Romans were considered the greatest luxury of the table, that Agrippina administered poison to her husband, Claudius Cæsar, to hasten her son's accession to the throne. Hence, probably, it derived its specific name *Cæsarea;* but Nero, for whose sake Claudius had been poisoned, called it the *food for gods,* because, after his death, Claudius was numbered amongst the Roman deities.

"It appears from Pliny, that, after the murder of Claudius, mushrooms fell into unmerited disrepute. He says, 'Among all those things which are eaten with danger, I take it that mushrooms may be justly ranged in the first and principal place; true it is that they have a most pleasant and delicate taste; but discredited much they are, and brought into an ill name, by occasion of the poison which Agrippina, the empress, conveyed unto her husband the emperor by their means: a dangerous precedent given for the like practice afterwards.' *(Holland's Trans.)* The A. cæsarea has, however, through the lapse of time, again recovered its reputation, for now it is commonly seen in the Italian markets: in Italy it is abundant, but in these kingdoms rare. It is liable to be mistaken for a poisonous species belonging to the same subgenus. but may easily be distinguished by its yellow gills from the A. imperialis, in which they are always white."—*Vide Burnett's Outlines of Botany,* vol. i. p. 260.

Accidents arising from the deadly Fungi being mistaken for eatable mushrooms, are common on the continent, and especially in France. They are by no means unfrequent too, in Britain; but they are much less frequent than abroad; because the epicure's catalogue of mushrooms in this country contains only three species, whose characters are too distinct to be mistaken by a person of ordinary skill; while abroad a great variety of them have found their way to the table; many of which are not only liable to be confounded with poisonous species, but are even also themselves of doubtful quality. The present subject cannot be thoroughly studied without a knowledge of the appearance and characters of all the fungi which have been ascertained to be esculent, as well as those which are known to be esculent, as well as of those which are known to be deleterious. This information, however, I cannot pretend to communicate, as it would lead to great details. In what follows, therefore, a simple list will be given of the two classes, with reference to the proper sources for minute descriptions of them, and some general observations on the effects of the poisonous species.

The only good account yet published of the innocent or eatable fungi of Great Britain is contained in an elaborate essay on the subject by *Dr. Greville.* He enumerates no fewer than twenty-six different species, which grow abundantly in our woods and fields, and which, although most of them utterly neglected in this country, are all considered eatable, and many of them delicate abroad.

(Christison on Poisons.)

Atropa Belladonna

ATROPA BELLADONNA.——DEADLY NIGHTSHADE.

CLASS FIFTH, PENTANDRIA.—ORDER FIRST, MONOGYNIA.

NATURAL ORDER, SOLANEÆ.————THE NIGHT-SHADE TRIBE.

ATROPA BELLADONNA, the Dwale, or deadly Night-shade, (the Solanum lethale, maniacum, or furiosum, of the older writers,) is one of the most powerful of our native narcotic poisons: and its various synonymes are truly expressive of its strangely fatal powers. Its present generic name is a slight variation of Atropos, one of the evil destinies, and a derivative of α and τρεπω, thus signifying the inflexible, and being indicative of the inevitable fate of such as become subject to its influence. The modern specific name Belladonna, in the Italian language signifies a beautiful woman; and was bestowed on this plant in consequence of the use once made of its berries by the Italian ladies as a cosmetic; and older ones, lethale, maniacum, and furiosum, allude to the frantic delirium, nay, madness, which precede death when it is taken in over doses. From the tempting appearance of its black, shining, cherry-like fruits, accidents have frequently happened to children and others who have eaten it, being ignorant of its deleterious properties.

Koestler, of Vienna, has placed upon record the symptoms which occured in five persons of different ages, who ate more or less freely of the berries of this fatal plant; they were a man and his two sons, one a boy nine years old, the other five years of age, and two older daughters. The younger children ate the most, and in them the phenomena were the most marked; they became restless and delirious, complained of pain in the head, giddiness, dimness of vision, and subsequently loss of sight. The pupils were much dilated, the restlessness uncontrollable, but the wanderings all on lively subjects. There were observed frequent spasmodic contractions of the muscles of the eye-balls, and of the throat, especially of the latter, whenever any attempts were made to swallow; the phenomena, on the whole, bearing a strong resemblance to the symptoms of mania.

But a still more important record is that of M. Gaultier de Claubry, who relates the case of 150 soldiers who were poisoned by it near Dresden. (Sedillot's Journ.) The cases of six soldiers, likewise poisoned by this deadly plant, are given by Mr. Brumwell, (in the Lond. Med. Observations and Inquiries,) and in most of them the delirium was extravagant, and commonly of the most pleasing kind, sometimes accompanied with immoderate and uncontrollable paroxysms of laughter, sometimes with constant talking, but occasionally as in the soldiers, with complete loss of speech.

The poisonous qualities of Belladonna reside in every part of the plant, but chiefly predominate in the fruit: the berries are said to be less pernicious than the leaves; and although one, or even half of one, has produced death, Hatter informs us that he has seen a fellow student eat three or four with impunity. Dr. Paris, in his Synoptical Tables of poisons, remarks that Belladonna is one of the narcotico-acrid class, which not only exerts a local action, but poisons by entering the circulation, and thereby acting through that medium, with different degrees of energy on the heart, brain, and alimentary canal. When taken in an over-dose it produces intoxication,—a fact too obvious to have escaped the penetrating genius of Shakspeare, for in the speech of Banquo to Macbeth, we read,—

> " Or have we eaten of the insane root,
> That takes the reason prisoner?"

Sauvages (Nosel,) supposes that the Belladonna was the plant which produced such strange and dreadful effects upon the Roman soldiers during their retreat (under the command of Antony,) from the Parthians; they are said to have "suffered great distress for want of provisions, and were urged to eat unknown plants; among others they met with an herb that was mortal; he that had eaten of it lost his memory and his senses, and employed himself wholly in turning about all the stones he could find, and after vomiting up bile, fell down dead."—Plutarch's Life of Antony. Buchanan relates that the Scots mixed a quantity of the juice of the Belladonna with the bread and drink which by their truce they were to supply the Danes with, which so intoxicated them, that the Scots killed the greatest part of Sweno's army while asleep.

The active properties of Belladonna reside in a salifiable base named *Atropine.*

Action of Atropine on the Animal Economy.—When M. Brandes was experimenting on this alkali, he was obliged to desist, in consequence of the violent head-aches, pains in the back, and giddiness, with frequent nausea, which the vapour of the salt occasioned: it had, indeed, so injurious an effect upon his health, that he entirely abstained from further experiments. He once tasted a small quantity of the sulphate of Atropine—it was merely saline. He was quickly attacked with violent head-ache, shaking in the limbs, alternate sensations of heat and cold, oppression of the chest, difficulty of breathing, and diminished circulation of the blood. The violence of these symptoms ceased in half an hour. The vapour, even of the various salts of Atropine produces vertigo. When exposed for a long time to the vapours from a solution of nitrate, phosphate, or sulphate of Atropine, the pupil of the eye becomes dilated. This occurred frequently to M. Brandes; and when he tasted the salt of Atropine, the dilatation followed to so great a degree, that it continued for twelve hours, and was not influenced by the different shades of light, which were thrown on the eye. M. Runge ascertained that alkaline solutions completely destroy the properties of Atropine, or, at least, affect it so much that it loses the power of causing dilatation of the pupils; he also found that lime water produces the same effect.

Belladonna has been much extolled as a remedy in hooping cough, and from its exhibition being accompanied by symptoms resembling those of scarlatina, it has been recommended as a preventive against that disorder, and it does really seem, on experiment, to render persons insusceptible of the infection of scarlet fever.

A plaster composed of one part of carbonate of ammonia to three of extract of Belladonna, and spread on soft leather, is an excellent combination for painful muscular affections.

The Belladonna is a perennial plant, flowering in June, and July, ripening its berries in September, and rises to the height of three or four feet. It is generally found in shady lanes, and hedges; in the neighbourhood of villages, and ancient ruins, and very luxuriantly amongst the ruins of Furness Abbey, in consequence of which, the valley is called the vale of Night-shade.

Solanum Dulcamara.

SOLANUM DULCAMARA.—WOODY NIGHTSHADE, OR BITTER SWEET.

CLASS V. PENTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, SOLANEÆ.——THE NIGHTSHADE TRIBE.

FIG. (*a*) Solanum Nigrum, Common or Garden Nightshade. The whole Plant poisonous.

WOODY NIGHTSHADE, called also Bitter-sweet, from the flavour of the herb when chewed, and in Cumberland, *Fellonwood*, is an indigenous climbing shrub, very common in moist hedges, on the banks of ditches, and sometimes on old walls; flowering from June to September. It grows also in similar situations in most parts of Europe, occurring in Greece, and even as far north as Norway.

This well-known species of Solanum has several long, slender, roundish, winding stems, divided into a few erect, alternate branches, and rising, when supported, to the height of eight or ten feet. The stalks are covered with a greyish-green bark, on the lower part, but of a purple hue on the upper side, towards the ends of the branches. The root is small, creeping, and woody. The leaves are alternate, acute, mostly smooth, though sometimes hairy, soft, of a dull green colour, and supported on footstalks. They are cordate towards the bottom; more or less perfectly halbert-shaped at the top. The flowers are in very elegant, branched corymbiform racemes opposite to the leaves, or terminal; drooping, divaricate, and alternately subdivided. The calyx is small, 5-10-cleft, with blunt segments: corolla wheel-shaped, consisting of five, reflected, equally divided, acute, violet-coloured segments, with two round pale green, or whitish spots at the base, and large yellow anthers, longer than the filaments, subcoalescent into a sort of cone. The germen is roundish, having a thread-shaped style projecting beyond the anthers which dehisce by pores. The berries, which ripen in autumn, are oval, scarlet, full of a nauseous juice, and contain several whitish, plano-convex seeds.

The origin of the word *Solanum* is extremely doubtful; some ingenious etymologists derive it from *Solamen*, (*a solari*,) comfort or consolation, in allusion to the relief afforded by some species as medicines, while other commentators believe the name to be a corruption of "*Sulanum* a suibus qu. suillum, quod suibus adversus venenosos morbos exhiberi solet;" and others again, a *sole*, referring to the splendour of the fruit.

QUALITIES AND CHEMICAL PROPERTIES.—The dried herb is inodorous; but the smell of the recent plant is heavy and disagreeable. The stalks, whether fresh or dried, have a slightly bitter taste, followed by a remarkable sweetness, somewhat resembling liquorice, a peculiarity which, no doubt, suggested the names *Glycypicros* and *Dulcamara*, of which the English trivial name is a just translation. The twigs, which for medicinal use should be gathered in the autumn, are the only parts employed, though the roots are said to possess similar qualities.—Water appears to be a perfect solvent of their active properties; but much boiling destroys their powers. The chief soluble portion seems to be a kind of mucous extractive, which is taken up both by water and alcohol, though most by the former: and the nitrate of mercury and muriate of tin, give precipitates from both, though most from the water. An ounce of the twigs, according to Hartmann and Kühn, when treated with alcohol, afforded two drachms and two scruples of extract. The same quantity treated with water, gave three drachms and thirty-five grains.

POISONOUS EFFECTS.—Belonging to the same natural order with hyoscyamus, the different species of Solanum are considered by Orfila and others, to be possessed of similar properties; although in a much less potent form. Indeed we are inclined to think the identity of name with the *deadly nightshade*, (Atropa belladonna,) which was formerly called likewise, Solanum, (it being the Solanum furiosum, lethale, somniferum, and melanoceros of the older writers,) has contributed not a little to exaggerate the poisonous character of the *Dulcamara* and other species of the modern genus Solanum. Schlegel, (Hufeland's journal 54, ii. 29,) says, that those persons are in error who have believed Solanum *Dulcamara* to possess distinct narcotic

properties. And M. Duval states, in his treatise on the Solaneæ, that he found a dog might take 180 berries, or four ounces of the extract, without inconvenience; and furthermore, he quotes an experiment on the human subject, where thirty-two drachms of extract were taken in two doses, also without injury. Upon which evidence Christison concludes, that "if it has any power at all, it must possess too little to be entitled to the name of a poison." A conclusion which seems justified by the previous evidence, and one in which we should have concurred, had not counter experience, such as we shall immediately adduce, led us to question its propriety, and to doubt whether some undetected error may not attach to the observations of M. Duval. We therefore must warn our readers, that, given in an over dose, a decoction of the twigs of Solanum *Dulcamara* produces on the human subject the ordinary symptoms of narcotic poisons. The crimson berries, which with those of the white and black Briony, (Bryonia *dioica* and Tamus *communis*,) ornament our hedges at the approach of winter, are known to the peasantry by the name of "poison berries." They have a disagreeable, bitter, nauseous taste; and the subjoined extract of a letter from Mr. Wheeler, surgeon, of Bayswater, attests in a striking manner their deleterious effects.

"On the 23rd of September, 1824, I was sent for, in great haste, to see two children belonging to Mr. Hebbut, of Kensington Gravel Pits. The elder was five years old, the younger three and a half. While playing in a field, close by their home, they were attracted by the sight of the beautiful red berries of the *Dulcamara*, and each ate a few. On their return home, about an hour after partaking of them, they were seized with the most excruciating pains in the whole course of the intestines; attended with great heat in the throat and chest. They could not bear the slightest pressure on the abdomen; and suffered much from nausea, thirst, and prostration of strength. It immediately occurred to my mind that these were the effects of some vegetable poison, and on questioning the mother, she ascertained where they had been, and that they had partaken of some berries. The pulsations at the wrist had now become exceedingly frequent, and the breathing painful and hurried. Hot water being at hand, I had them put into a bath, and administered a strong solution of sulphate of zinc every five minutes, which soon dislodged the contents of the stomach; and I had the satisfaction to see several berries rejected, which were partially masticated, and appeared as though they were undergoing the process of digestion. After coming out of the bath, leeches were applied to the abdomen, and the bleeding was encouraged by poultices. I also ordered twelve grains of calomel for the elder, and ten for the younger, which were followed by a mixture of castor oil, manna, and laudanum, in proper portions. Injections of beef broth were also frequently administered. In the evening, I found that the bowels had been freely acted on, and the evacuations were green, slimy, and extremely offensive. The tongue of each was red and dry.

"(Sept. 24th.) The tongues continued in the same condition. The bowels had been freely opened in the night. The breathing was but little improved. The bowels were not so much distended, nor was the pain produced by pressure, so great. The pulses were still hard and quick; I therefore ordered the calomel, castor oil, and leeches to be repeated.

"(25th.) Pulses soft and reduced in velocity. A gentle moisture pervaded their skins; the breathing was better, and their bowels much relieved; the evacuations had been plentiful, and were not so green. Calomel and castor oil to be persisted in.

"(26th.) Are much better and free from pain, but extremely debilitated. Ordered them beef tea and mucilaginous drink. After this they gradually recovered, and on the 30th I took leave of them."

"In 1825, a child of Mr. Simmons, four years old, residing in Camden's Place, swallowed some of the berries. He was a fine, stout, healthy boy. The symptoms were exactly the same as those already described, but attended with violent vomiting and purging, with contraction of the abdominal muscles. *There was also a profuse secretion of saliva.* I took five ounces of blood from the arm; gave twelve grains of calomel in a little sugar, and ordered the oily mixture with four drops of laudanum in each dose. Leeches were also applied to the abdomen. In the evening, I found that the bowels had been freely acted on, and the breathing was much improved. I continued my attendance for several days, and considered that his recovery was probably protracted from my not having seen him till three hours after he had taken the berries.

. "I have had the pain to be called to the Harrow Road, on two occasions, where the little sufferers died, from my visits being protracted to ten and twelve hours after the poisonous repast. In neither case could I obtain leave to inspect the bodies."

On animals, the berries of Solanum *Dulcamara* produce but little or no effect, as we have ascertained by experiments; the results of which support the accuracy of those which are detailed in the work already referred to by M. Duval, entitled *Histoire Naturelle, Médicale, et Economique des Solanum.*

Medical Properties and Uses.—The effects of the Solanum *Dulcamara* are those of a narcotic, diaphoretic and diuretic: in large doses it produces nausea, vertigo, syncope, diarrhœa, and even death. Chronic rheumatism, gout, incipient phthisis, humoral asthma, jaundice, and several other diseases, are said to have been benefited by the use of this plant; and although it is now but little employed, it has been highly recommended by Linnæus, Carrere, and others, for its efficacy in herpetic diseases, scabies, &c.

Murray, in his "Apparatus Medicaminum," says it promotes all the secretions: and Bergius recommends its use in rheumatism. According to a letter from Sir Alexander Crichton, which is published in Dr. Willan's celebrated work on Diseases of the Skin, only two cases of Lepra Græcorum, out of twenty-three, resisted its action. Psoriasis and pityriasis appeared also to be benefited by it. His mode of employing it is the following: Take of the stalk of *Dulcamara*, one ounce: water a pound and a half; boil to a pound, and strain when cold. Of this decoction, the patient is recommended to take two ounces, morning, noon, and evening, and to increase the doses till a pint is consumed a day. Where the skin is not in an inflamed or a very irritable state, a strong decoction may be applied, as a useful auxiliary. Dr. Crichton found that in delicate people, and hysterical women, it frequently produced syncope and slight palpitation of the heart, attended occasionally by nausea and giddiness. Our own experience confirms these remarks; but if the dose be somewhat diminished, and an aromatic added, these symptoms cease. Professors Bigelow and Murray and Dr. Bateman confirm the utility of this medicine; and the latter considers, that "one of the most effectual remedies for lepra, under all its varieties, is the decoction of the leaves and twigs of the Solanum *Dulcamara.*" We have often given it to patients afflicted with the different varieties of lepra, and sometimes with success; but as lepra is a disease, which, in this country, may be generally traced to a want of tone or vigour in the whole system, we prefer a general mode of treatment to a specific one; and believe, that experience will confirm the propriety of this view of the subject. By some it is averred to be a valuable auxiliary to mercury, and as it is a medicine indigenous to our country, we should strongly recommend it to be employed on an extensive scale, in our hospitals, that its real powers may be ascertained. Dr. Cullen found different parcels of the herb to exhibit very different degrees of strength; but as we think with Professor Bigelow, that "the appearance of slight narcotic symptoms is an evidence of the goodness of the medicine," we can regulate the dose by its effects. As it is an active medicine, it is proper to begin with small doses. Dr. R. Pearson, in his practical Synopsis of the Materia Medica, observes that an infusion or decoction of the stalks or twigs has been given with good effect in humoral asthma and dropsy. He recommends two drachms of the fresh stalks, chopped small to be infused in eight ounces of boiling water. Of this infusion, which is a more certain preparation than the decoction, since by long boiling the active properties of the plant are mostly dissipated, two ounces may be given three or four times a day. Of the powder, which is rarely employed, the dose may be from one scruple to a drachm or more, gradually increased.

Off. Prep.—Decoctum Dulcamaræ. *L.*

We do not know if any one has ever written a panegyric on digressions; if not, it should be done forthwith. How could didactic poets get on without them? Cowper's Sofa is all digression, and if the Georgics had merely taught us how to clip vines, and rear bees, they would not have been the delight of every man of taste for nearly two thousand years. These considerations prompt us to wander from *dulcamara* to the spring; though, indeed, there is a strong analogy between the subjects; are not the bright skies and sharp winds of April so many alternatives of sweets and bitters? Let us indulge ourselves, then, with a quotation from one who writes upon the spring at once like a lover of nature and a scholar.

"Spring while we are writing, is complete. The winds have done their work. The shaken air, well tempered and equalized, has subsided; the genial rains, however thickly they may come, do not saturate the ground, beyond the power of the sun to dry it up again. There are clear crystal mornings; noons of blue sky and white cloud; nights, in which growing moon seems to lie looking at the stars, like a young shepherdess at her flock. A few days ago she lay gazing in this manner at the solitary evening star, like Diana, on the slope of a valley, looking up at Endymion. His young eye seemed to sparkle out upon the world, while she bending inwards, her hands behind her head, watched him with an enamoured dumbness.

But this is the quiet of Spring. Its voices and swift movements have come back also. The swallow shoots by us, like an embodied ardour of the season. We have not yet heard the nightingale or the cuckoo; but we can hear them with our imagination, and enjoy them through the content of those who have.

Then the young green. This is the most apt and perfect mark of the season. The trees and bushes are putting forth their crisp fans; the lilac is loaded with bud; the meadows are thick with the bright young grass, running into sweeps of white and gold with the daisies and buttercups. The orchards announce their riches, in a shower of silver blossoms. The earth in fertile woods is spread with yellow and blue carpets of primroses, violets, and hyacinths, over which the birch trees, like stooping nymphs, hang with their thickening hair. Lilies of the valley, stocks, columbines, lady-smocks, and the intensely red pæony which seems to anticipate the full glow of summer-time, all come out to wait upon the season, like fairies from their subterraneous palaces.

Who is to wonder that the idea of love mingles itself with that of this cheerful and kind time of the year, setting aside even common associations!

All our kindly impulses are apt to have more sentiment in them, than the world suspects; and it is by fetching out this sentiment, and making it the ruling association, that we exalt the impulse into generosity and refinement, instead of degrading it, as is too much the case, into what is selfish, and coarse, and pollutes all our systems. One of the greatest inspirers of love is gratitude,—not merely on its common grounds, but gratitude for pleasure, whether consciously or unconsciously conferred. Thus we are thankful for the delight given us by a kind and sincere face, and if we fall in love with it, one great reason is, that we long to return what we have received. The same feeling has a considerable influence in the love that has been felt for men of talents, whose persons or addresses have nót been much calculated to inspire it. In spring time, joy awakens the hearts: with joy, awakens gratitude and nature; and in our gratitude, we return, on its own principle of participation, the love that has been shown us." *The Indicator*, by Leigh Hunt.

Milton (no bad authority) desires that boys should leave their books in this delightful season, and have a peep at the country. This is from one of his prose works, the Tractate on Education, but we observe that a man of rhyme has dressed up the thought, as follows:

Oh! in that vernal season of the year,
When the kind air breathes soft and wooingly,
It were a sullenness and injury
Against great Nature's self, who doth appear
Most brightly then, to pine in bookish gloom,
Holding communion with spirits bold
Of Greece, or Araby, or haughty Rome.
Rich in sweet-thoughts, and leisure-giving gold
Then let the high-born youth leave the fair page
Of Tully, or of Plato, for a while;
And guarded by some never-sleeping sage,
As serpent wise, but free as dove from guile,
Dear England's inmost spirit let him seek,
In wood, and plain, and hill, and sheltered creek.

In the language of flowers, the Bitter-sweet is the emblem of Truth.

Myristica moschata

MYRISTICA MOSCHATA.—THE NUTMEG TREE.

Class XXII. DIŒCIA.—Order XII. MONADELPHIA.

Natural Order, MYRISTICEÆ.—THE NUTMEG TRIBE.

Fig. (*a*) Stamineous flower cut open to show the column of stamens. (*b*) Pistilline flower cut open to show the pistil. (*c*) Ripe fruit in the act of bursting, showing the nut included in the mace, natural size. (*d*) The mace from which the nut has been removed. (*e*) The seed or nutmeg with part of its shell.

Spec. Char. *Leaves* elliptic-oblong, smooth, pointed, paler beneath, with simple parallel nerves. *Perianth* of one leaf, coriaceous, urceolate. *Peduncles* with few flowers.

The Nutmeg, called *Nux myristica*, or balsam nut, by the old writers, from the Greek μυριστικος, *balsamica*, is a dicecious tree, a native of the Moluccas, or Spice Islands; but is principally confined to that group denominated the islands of Banda, lying in lat. 4° 30′ south, where it bears blossoms and fruit all the year.

This tree is compared by Rumphius to a common pear-tree with respect to size and appearance; it is said to bear fruit at ten years' growth, which improves in quality, and increases in quantity, until the tree attained the age of an hundred years. The trunk rises to the height of twenty-five feet, clothed with a greyish-brown and tolerably smooth bark, abounding in a yellow juice, and bearing many whorls of spreading branches. The leaves, which stand alternately on short petioles, are from three to six inches long, subbifarious, oblong, glabrous, pointed, rather obtuse at the base, undulated, entire, of a dark green colour, and somewhat glossy above, beneath much paler, but neither pulverent nor downy; with simple, parallel nerves, a little branched at the extremities towards the margin, prominent, and of a brownish colour beneath. When bruised, the leaves are slightly aromatic. The flowers are present at the same time with the fruit, in axillary, subumbellate racemes, and are supported on smooth, subclavate foot-stalks, each pedicle or flower-stalk having a quickly deciduous bractea at the summit. The stamineous flowers are from three to five or more on a peduncle. The perianth is single, urceolate, petaloid, and not inaptly compared by Rumphius to the flower of the *Lily of the Valley*, which it resembles in size and form; it is of a thick fleshy texture, clothed with a very indistinct pubescence, of a dingy pale yellowish colour, and cut into three, rarely into four erecto-patent teeth at the extremity.

According to Dr. Ainslie, the nutmeg-tree has of late years been cultivated at Batavia, Sumatra, and Penang. An inferior and long-shaped kind of nutmeg is common in the island of Borneo, and there is a wild sort (*cat judicai*) frequently to be met with in the woods of southern India, especially in Canara, which Dr. Buchanan thinks might be greatly improved by cultivation.

The nutmeg has been supposed to be the κώμακου of Theophrastus, but there seems little foundation for this opinion; nor can it with more probability be affirmed to be the χρισοβαλανος of Galen. Our first knowledge of the nutmeg, as well as the clove, was evidently derived from the Arabians, long before the East India Islands were discovered by the Portuguese. By Avicenna, who flourished about the year 1160, it was called *Jiansiban* or *Jansiban*, which signifies *Nut of Banda.*

In 1602, the Dutch, having subjected the original inhabitants, were the first European occupiers of the Banda isles. In 1609, they entered into a treaty with the Oraucais or natives, who bound themselves to send all their nutmegs and mace to the Dutch fort of Nassau, in the island of Nera, at a fixed price, while the Dutch pledged themselves to defend the natives against enemies, and particularly against the Portuguese. The breach of this agreement by the natives, and the murder of the Dutch commissary, occasioned hostilities between the two powers. In 1616, a similar treaty was entered into with the English, who were then at war with the Dutch; but this also was broken by the inhabitants of Banda. The English having refused, after they had made peace with the Dutch, to join them in the reduction of the Banda isles, the latter attacked them in 1621, and compelled the natives to deliver up their towns, their forts, their arms, and all their islands. In order to secure to themselves the nutmegs and mace which these islands produced, the Dutch erected forts in all of them, and divided the soil into orchards, which they distributed among the Dutch colonists in proportion to the number of their slaves. The Banda isles were taken from the Dutch by the English Admiral Ranier in 1796, and in 1801 were restored to them by the treaty of Amiens.

When crops of spice have been superabundant, and the price likely, in consequence, to be reduced, the same contracted spirit has actuated the Dutch to destroy immense quantities of the fruit, rather than suffer the markets to be lowered. A Hollander, who had returned from the Spice islands, informed Sir William Temple, that, at one time he saw three piles of nutmegs burnt, each of which was more than a church of ordinary dimensions could hold. In 1760 M. Beaumare witnessed at Amsterdam, near the Admiralty, the destruction, by fire, of a mass of spice, which was valued at one million of livres, and an equal quantity was condemned to be burnt on the day following: and Mr. Wilcocks, the translator of Stavorinus's Travels

relates, that he himself beheld such a conflagration of Cloves, Nutmegs, and Cinnamon, upon the little island of Newland near Middleburgh, in Zealand, as perfumed the air, with their aromatic scent, for many miles round.—*Curtis's Botanical Mag.*

In our West-Indian colonies, the nutmeg was introduced about thirty years ago; and first, to the island of St Vincent, from Cayenne, though not without great difficulty, on account of the extreme jealousy of the inhabitants of that colony, the two countries being then at war with each other. The three trees which were originally imported, have borne fruit for many years, and have attained the height of twenty feet, with a trunk eight or nine inches in diameter. It does not, however, appear, that the culture of the nutmeg succeeds so well in the west, as in the East Indies. Mr. Lockhart, who has the charge of the plants introduced into the islands of Trinidad, by his excellency Sir Ralph Woodford, observes, in a letter to me, that the plants flourish best in the rainy season; even when moderate showers fall, requiring constantly artificial watering; although a soil saturated with moisture is injurious. For a long time, though the trees introduced into St. Vincent produced abundance of flowers, they bore small crops of fruit, until Mr. Guilding recommended the same process as is employed with the caprification of the fig, when the crops were much more productive, two trees at one period bearing three hundred ripe fruits.[a]

Qualities and Chemical Properties.—Nutmegs should be chosen large, of the shape of an olive, *heavy*, and firm, of a lightish grey colour on the outside, beautifully striated, and reddish within: of a strong fragrant odour, warm aromatic taste, and of an unctuous feel. The oblong kind, and the smaller ones, should be rejected. Distilled with water, they yield a large quantity of essential oil, resembling the spice itself in flavour.

Oil of Nutmegs is expressed from imperfect nutmegs, and such as are unfit for the European market: there are three sorts of it, commonly called *oil of mace*. The best is brought in stone jars; softish, of a yellow colour, an agreeable fragrant smell, greatly resembling that of the nutmeg. This is denominated Banda soap, and should be chosen free from impurities, and of a good colour. The next comes from Holland, in solid masses, generally flat, and of a square figure: paler coloured, weaker in smell, and inferior in its quality to that of India. The last is the worst, and seems to be a composition of suet, palm oil, or some such matter, flavoured with a little genuine oil.

Mace is a thin, flat membranaceous substance enveloping the nutmeg; of a lively reddish brown or saffron colour, of a pleasant aromatic smell, and a warm, bitterish pungent taste. Mace should be chosen fresh, tough, oleaginous, of an extremely pungent smell, of a bright reddish yellow, the brighter the better; the smaller pieces are esteemed the best. The state it is in when packed, should be particularly attended to: if it be too dry, it will be broken, and lose much of its fragrance; if too moist, it is subject to decay and to breed worms. It should be packed in bales, pressed down close and firm, whereby its fragrance and consistence will be preserved,

Medical Properties and Uses.—Nutmegs, which are universally known as a spice, are chiefly employed in medicine to impart their grateful aromatic flavor, and to obviate the irritating effects of drastic purgatives. They are supposed to be cordial, carminative, anodyne, and astringent; and with a view to the last mentioned effects, they have been used in diarrhœa and dysentery. Given in large quantities, the nutmeg produces stupor, drowsiness, and other symptoms of narcotic poisons, in consequence of which Cullen warns us not to administer it to patients disposed to apoplexy. Bontius also speaks of their anodyne effects as a frequent occurrence in India. The *volatile oil*, possessing the taste and odour of the fruit in a concentrated degree, is occasionally used as an external stimulant; and the *expressed oil*, improperly called oil of mace, is generally prescribed in the same manner.

Dose.—The dose of the nutmeg (which is sometimes employed to relieve nausea and vomiting, or to check diarrhœa, when given in wine) is from four grains to a scruple: of the *volatile oil*, from two to eight drops. Custom, however, reconciles the constitution to much larger quantities than could be borne by untutored stomachs. In India, the consumption of nutmegs as a condiment, is immense: in the Moluccas, the natives mix them with all their food, and drink, and medicines; they even chew them as a masticatory, and eat them preserved both in salt and sugar.

Mace is also chiefly used for culinary purposes; but, according to Dr. Ainslie, it "is a favourite medicine with the Hindoo doctors, who prescribe it in the low stages of fever, in consumptive complaints, and humoral asthma; and also, when mixed with aromatics, in wasting and long-continued bowel complaints, in doses of from eight to twelve grains, and sometimes to as much as half a drachm; but they generally administer it cautiously, from having ascertained that an overdose is apt to produce dangerous stupor and intoxication."

Tinctura Nucis Moschatæ.

℞. Nucis Moschatæ contritæ, ℥iii.
Spirit. vini ten. lbij. M.

Off. Prep.—Spiritus Myristicæ. *L. E.*
Tinctura Lavandulæ comp. *L.*
Mistura Ferri composita. *L.*

[a] Curtis's Botanical Magazine, M.S. Vol. 1.

Quercus pedunculata?

QUERCUS PEDUNCULATA.—THE OAK.

Class XXI. MONŒCIA.—Order VII. POLYANDRIA.

Natural Order, CUPULIFERÆ.—THE OAK TRIBE.

Fig. *a.* represents a sprig with the male catkins; *b.* the same, with the female flowers; *c.* a male flower, magnified. *d.* a female flower, magnified.

Of this genus, so valuable for its economical uses, there are only fourteen species described by Linnæus. The discoveries of Thunberg, Humboldt, and other distinguished travellers, have so greatly enriched the subject, during the last fifty years, that Willdenow, who wrote in 1805, describes seventy-six, and Persoon, about the same period, enumerates eighty-two species. Twenty-six species were discovered in North America, by two indefatigable naturalists, father and son, named Michaux; and Humboldt and Bonpland have mentioned twenty-four others, which they found in the course of their travels in South America. Of the one hundred and forty species known at the present day, more than one half belong to America. The various species of oak are mostly large trees; some are evergreens, and others are deciduous, or lose their leaves during the winter. In this country we have two distinct species of oak, the Quercus pedunculata (or Robur) and the Quercus *sessiliflora;* the former of which affords the best timber, and is by far the most common in the woods and hedges of Britain; flowering in April.

The British Oak, it is well known, is a majestic forest tree, distinguished above all others for the slowness of its growth, its great size, longevity, and use. In woods, as Professor Martyn justly observes, it rises to a considerable height; but singly, it is rather a spreading tree, sending off horizontally immense branches, which are much divided, more or less wavy, and covered with a rough brown bark. The leaves are deciduous, alternate, nearly sessile, or on very short footstalks, obovate, oblong, smooth, irregularly sinuated, with obtuse, rounded, entire marginal lobes; their upper surface of a rich shining green, paler, and slightly glaucous underneath. The *male* or barren flowers are in numerous, pendulous, stalked, yellowish, downy catkins, two inches long, from scaly buds; the *female* on axillary, simple stalks, few, scattered, sessile, small, and greenish tinged with brown. The calyx of the male flower is a scale of one leaf, bell-shaped, and generally five-cleft; that of the female is double; the outer one coriaceous, entire, becoming subsequently enlarged, and constituting the hard, tubercled, woody cup of the nut or acorn; the inner of one leaf and divided into six pointed, downy segments, closely surrounding the base of the germen. The filaments are about ten, longer than the calyx, and supporting roundish 2-lobed anthers. The germen is ovate, crowned with a short conical style, and three obtuse recurved stigmas. The fruit is an oval, coriaceous, smooth nut, fixed to the inside of the outer calyx, as in a shallow cup, and dropping from it when the nut ripens in autumn.

With respect to age, the Oak exceeds any other tree, except perhaps the yew; even the timber is useless for purposes of art till it has grown from fifty to seventy years. The age to which it can continue to vegetate has commonly been estimated at three hundred years; but tradition carries some trees which have escaped the axe to a period much more remote. In the New Forest, Evelyn counted, in the sections of some trees, three or four hundred concentric rings or layers of wood, each of which is supposed to record a year's growth. Not many years ago, the oak in Torwood Forest, in Stirlingshire, supposed to be the largest tree in Scotland, under the shadow of which Sir William Wallace used to assemble his army to oppose the tyranny of Edward, is said to have been still standing. Mr. Gilpin, in his work on Forest Scenery, speaks of a "few venerable oaks in the New Forest, that chronicle upon their furrowed trunks ages before the Conquest."

The story of Erisichthon in Ovid is one of many proofs of the reverence entertained for oaks by the ancients.

As fame reports, his hand an axe sustained,
Which Ceres' consecrated grove profaned;
Which durst the venerable gloom invade,
And violate with light the awful shade.
An ancient oak in the dark centre stood,
The covert's glory, and itself a wood;
Garlands embraced its shaft, and from the boughs,
Hung tablets, monuments of prosperous vows.
In the cool dusk its unpierced verdure spread,
The Dryads oft their hallowed dances led;
And oft, when round their gauging arms they cast,
Full fifteen ells it measured in the waist;
Its height all under standards did surpass,
As they aspired above the humbler grass.
These motives, which would gentler minds restrain,
Could not make Triope's bold son abstain;
He sternly charged his slaves with strict decree,
To fell with gashing steel the sacred tree.
But whilst they, lingering, his commands delayed,
He snatched an axe, and thus blaspheming said;
Was this no oak, nor Ceres' favourite care,
But Ceres' self, this arm, unawed, should dare
Its leafy honours in the dust to spread,
And level with the earth its airy head.

He spoke and as he poised a slanting stroke,
Sighs heaved, and tremblings shook the frighted oak;
Its leaves looked sickly, pale its acorns grew,
And its long branches sweat a chilly dew.
But when his impious hand a wound bestowed,
Blood from the mangled bark in torrents flowed.
When a devoted bull of mighty size,
A sinning nation's grand atonement dies;
With such a plenty from the spouting veins,
A crimson stream the turfy altars stains.
The wonder all amazed; yet one more bold,
The fact dissuading strove his axe to hold.
But the Thessalian, obstinately bent,
Too proud to change, too hardened to repent,
On his kind monitor, his eyes, which burned
With rage, and, with his eyes, his weapon turned;
Take the reward, says he, of pious dread;
Then with a blow lopped off his parted head.
No longer checked, the wretch his crime pursued,
Doubled his strokes, and sacrilege renewed;
When from the groaning trunk a voice was heard,
"A Dryad I, by Ceres' love preferred,
With the circle of this clasping rind
Coeval grew, and now in ruin joined;
But instant vengeance shall thy sin pursue,
And death is cheered with this prophetic view."
At last the oak with cords enforced to bow,
Strained from the top, and sapped with wounds below,
The humbler wood, partaker of its fate,
Crushed with its fall, and shivered with its weight.

"But a sad revenge follows it, as the poet will tell you; and one might fill a just volume with the histories of groves that were violated by wicked men who came to fatal periods, especially those upon which the misletoe grew, than which nothing was reputed more sacred; for amongst such oaks the Druids usually dwelt,[a] and with whose leaves they adorned and celebrated their religious rites. 'The Druids' says Pliny, Lib. XVI. Cap. XLIV. 'for so they call their divines, esteem nothing more venerable than misletoe, and the oak upon which it grows.' Indeed they did nothing of importance without some leaves or branches of this tree. The misletoe was not to be gathered, but cut by the priest with a golden axe, praying for a blessing upon the divine gift; after this two white bulls were offered up as a sacrifice."

Evelyn's Sylva.

The following is a just and noble description of an aged oak:

Æsculus imprimis, quæ quantum vertice ad auras
Æthereas, tantum radice in Tartara tendit.
Ergo non hyemes illam, non flabra, neque imbres
Convellunt; immota manet, multosque per annos
Multa virûm volvens durando sæcula vincit.
Tum fortes latè ramos et brachia tendens
Huc illuc, media ipsa ingentem sustinet umbram.

Virg. Georg. Lib. ii. 291.

Chief, æsculus, whose head as high aspires,
Low as his root to central night retires.
Vainly the wintry blast invades his brow,
Vainly the torrent floods his base below:
Unmoved he sees round ages ages rolled,
Sees nations perish, and the world wax old,
Wide spreads his vigorous branches o'er the plains,
And on his central trunk th'o'ershadowing mass sustains.

Sotheby's Translation.

There are occasions when strength is injurious to its possessor; and the monarch of the forest is often laid low by the storm which spares his subjects.

——— Merciful Heaven,
Thou rather, with thy sharp and sulphurous bolt,
Split'st the unwedgeable and gnarled oak,
Than the soft myrtle.

Measure for Measure, Act ii. Scene 2.

The oracle which advised the Athenians to rely on wooden walls has long been thought applicable to this country; and these elegant lines of Pope point out the use of the oak in commerce.

Let India boast her plants, nor envy we
The weeping amber, and the balmy tree,
While by our oaks the precious loads are borne,
And realms commanded, which those trees adorn.

Windsor Forest.

MEDICAL PROPERTIES AND USES. Oak bark is a powerful astringent, and united with bitters and aromatics has been recommended in intermittents. A decoction or infusion of oak bark is a very good gargle in relaxed sore throat.

OFF. PREP. Decoctum Quercûs, *L. E.*
Extractum Corticis Quercûs, *D.*

In the language of Flowers, the Oak is the emblem of hospitality, and the Oak Leaf of bravery and humanity.

[a] *Nemora alta remotis Incolitis lucis.* LUCAN.

Odontoglossum Rossi.

ODONTOGLOSSUM ROSSII.—ROSS'S ODONTOGLOSSUM.

Class XX. GYNANDRIA.—Order I. MONANDRIA.

Natural Order, ORCHIDEÆ.——THE ORCHIS TRIBE.

Character[a] of the genus, Odontoglossum. Perigonium explanate; leaflets narrow, acuminate, free, exterior and interior equal. Labellum clawed, continuous with the base of the column, spurless, undivided lamina patent, crested at the base. Column erect, with a membranaceous margin winged on each side. Anthers two-celled. Pollen Masses two, solid. Caudicula linear. Gland hooked.

Description of the species, Odontoglossum Rossii. Epiphyte, Plant from 6 to 8 inches in height. Pseudobulbs about an inch high, somewhat compressed, two-edged. Sheaths brown, scarious, longer than the pseudo-bulbs. Leaves sometimes solitary, sometimes in twos, lanceolate, striated, acute, erect or revolute, from three to six inches long and about an inch wide. Scape erect, about six inches high, producing from two to three flowers. Peduncles from two to three inches long. Bracts solitary, brown, varying in length from two to ten lines. Flowers about two inches in diameter. Sepals patent, or incurved, lanceolate-acute, of a greenish brown colour, in the inside beautifully banded with brown, on the outside spotted with the same colour. Petals white, ovate, lanceolate, obtuse, longer than the sepals, revolute, margin irregular, sometimes spotted at the base with brown, sometimes blotched with brown. Labellum white, unguiculate ovately round, margin dentate or undulate, obtuse, unguis about three lines long. Lamellæ of the labellum yellow, cup-shaped, fleshy, united in the fore part, about three lines long, striped in the centre with scarlet. Column curved, about six lines long, wingless, but membranaceous at the edges. Stigmatic cavity ovate, about half the length of the column, and tinted with pink at the margin. Anther 2- celled, beaked, the apex partaking of the same colour as the edge of the stigmatic cavity. Pollen Masses two, pear-shaped, posteriorly sulcate. Caudicula linear. Gland hooked.

Popular and Geographical notice. The genus Odontoglossum was made by Humboldt and Kunth, from the collection of Orchideæ, collected by Humboldt and Bonpland during their travels in South America. It is, obviously, very nearly related to the genus Oncidium, from which it is not easily separated, unless you depend on the structure of the labellum and gland; the former of which is entire and unguiculate, the latter hooked.

The species composing this genus are natives of South America, and there are about twelve species known. Their flowers are handsome and showy. Although this is a very showy species, yet it is not equal in beauty to several species yet to be introduced into this country, such for instance as Odontoglossum nebulosum, whose flowers are stated to be in circumference nine inches, Odontoglossum Cervanteii, which approach those of our present species, but are much larger and richer tinted. There is probably, little doubt, that from the exertions of Baron Hartweg, who has been exploring the nucleus of these plants, viz. Oxaca, at the expense of the London Horticultural Society, that if they are not at present in that collection, they shortly will be.

Introduction; Where grown; Culture. This plant was imported from Mexico in the year 1837, by George Barker, Esq. where it was found by his collector, Mr. Ross. Our figure was taken from a plant in the collection of the London Horticultural Society.

It should be cultivated in a warm and damp stove, and may be potted in the same way as other species of this tribe; or if preferred, it may be put on a piece of wood, and suspended from the top of the stove, as many other epiphytes. Its propagation is similar to many others—merely dividing the pseudobulbs. West.

Derivation of the Names. The generic name Odontoglossum is from Οδους a tooth, γλωσσα a tongue, in reference to the toothings at the base of the labellum: the specific name Rossii is in compliment to Mr. Ross, the collector of G. Barker, Esq. in Mexico.

A popular writer, quoted in the Every Day Book, observes: July is so called after Julius Cæsar, who contrived to divide his names between months and dynasties, and among his better deeds of ambition reformed the calendar. The heat is greatest in this month on account of its previous duration. The reason why it is less so in August is, that the days are much shorter, and the influence of the sun has

[a] We are indebted both for figure and description to Mr. Maund's Botanist.

been gradually diminishing. The farmer is still occupied in getting the productions of the earth into his garners; but those who can avoid labour enjoy as much rest and shade as possible. There is a sense of heat and quiet all over nature. The birds are silent. The little brooks are dried up. The earth is chapped with parching. The shadows of the trees are particularly grateful, heavy, and still. The oaks, which are freshest because latest in leaf, form noble clumpy canopies, looking, as you lie under them, of a strong and emulous green against the blue sky. The traveller delights to cut across the country through the fields and the leafy lanes, where nevertheless the flints sparkle with heat. The cattle get into the shade, or stand in the water. The active and air-cutting swallows, now beginning to assemble for migration, seek their prey about the shady places, where the insects, though of differently compounded natures, 'fleshless and bloodless' seem to get for coolness, as they do at other times for warmth. The sound of insects is also the only audible thing now, increasing rather than lessening the sense of quiet by its gentle contrast. The bee now and then sweeps across the ear with his gravest tone. The gnats

> Their murmuring small trumpets sounden wide;————*Spenser.*

And here and there the little musician of the grass touches forth its tricksy note.

> The poetry of earth is never dead;
> When all the birds are faint with the hot sun,
> And hide in cooling trees, a voice will run
> From hedge to hedge about the new-mown mead;
> That is the grasshopper's.————*Keats.*

Besides some of the flowers of last month, there are now candy-tufts, catch-fly, columbines, egg-plant, French marygolds, lavateras, London-pride, marvel of Peru, veronicas, tuberoses, which seem born of the white rose and lily; and scarlet-beans, which though we are apt to think little of them because they furnish us with a good vegetable, are quick and beautiful growers, and in a few weeks will hang a walk or trellis with an exuberant tapestry of scarlet and green.

The additional trees and shrubs in flower are bramble, button weed, iteas, cistuses, climbers, and broom. Pimpernel, cockle, and fumitory, are now to be found in corn-fields, the blue-bell in wastes or by the road-sides; and the luxuriant hop is flowering.

The fruits begin to abound and are more noticed, in proportion to the necessity for them occasioned by the summer heat. The strawberries are in their greatest quantity and perfection; and currants, gooseberries, and raspberries, have a world of juice for us, prepared as it were, in so many crowds of little bottles, in which the sunshine has turned the dews of April into wine. The strawberry lurks about under a beautiful leaf. Currants are also extremely beautiful. A handsome bunch looks like pearls or rubies, and an imitation of it would make a most graceful ear-ring. We have seen it, when held lightly by fair fingers, present as lovely a drop, and piece of contrast, as any holding hand in a picture of Titian.

Bulbous rooted flowers, that have almost done with their leaves, should now be taken up, and deposited in shallow wooden boxes. Mignionette should be transplanted into small pots, carnations be well attended to and supported, and auriculas kept clean from dead leaves and weeds, and in dry weather frequently watered.

It is now the weather for bathing, a refreshment too little taken in this country, either in summer or winter. We say in winter, because with very little care in placing it near a cistern, and having a leathern pipe for it, a bath may be easily filled once or twice a week with warm water; and it is a vulgar error that the warm bath relaxes. An excess, either warm or cold, will relax; and so will any other excess: but the sole effect of the warm bath moderately taken is, that it throws off the bad humors of the body by opening and clearing the pores. As to summer bathing, a father may soon teach his children to swim, and thus perhaps might be the means of saving their lives some day or other, as well as health. Ladies also, though they cannot bathe in the open air as they do in some of the West Indian islands and other countries, by means of natural basins among the rocks, might oftener make a substitute for it at home in tepid baths.

Olea europæa?

OLEA EUROPÆA.—EUROPEAN OLIVE.

Class II. DIANDRIA.——Order I. MONOGYNIA.

Natural Order, OLEACEÆ.——THE OLIVE TRIBE.

Fig. *a)* is a perfect flower, magnified; (*b.*) the calyx, germen, and bipartite stigma; (*c*) the fruit; (*d*) the nut.

The Olive is an evergreen tree growing spontaneously upon a rocky soil, in Syria, Greece, and the north of Africa; and has been cultivated from time immemorial, and constitutes much of the riches of France, Spain, and Italy. It is only in favourable seasons, when protected in the same way as the myrtle, by a slight temporary screen of straw, or other materials, that it produces its flowers in this country; but its fruit seldom ripens. It has been conjectured by some, that the Olive-tree came originally from Asia, as it is found in most parts of Palestine, and actually gave name to the celebrated mount near Jerusalem.

The Olive is a low tree, rising from twenty to thirty feet, and frequently sending forth two or three upright, much branched stems, from the same root, which are covered with a greyish bark. The wood is hard and compact; its colour reddish, and it takes a good polish. The leaves are opposite, two or three inches long and about half an inch broad in the middle, nearly sessile, lanceolate, of a bright green colour, smooth on the upper surface, pale, and hoary beneath. The flowers are produced in small clusters at the axillæ of the leaves, on short foot-stalks, and furnished with small, hoary, obtuse bracteas; the calyx is obtuse and four-cleft; the corolla is white, gamopetalous, spreading, and divided into four ovate, obtuse segments. Each flower contains two stamens, which are shorter than the corolla, supporting large pale elliptical anthers, and a single slender, erect, style, rising from a roundish germen, and crowned with a bipartite stigma. The fruit is a smooth oval plum or *drupe*, of a violet colour, when ripe, having a nauseous bitter taste, but abounding in a bland oil, and enclosing an ovate, oblong, rugose nut or stone.

On the origin of the olive, the Greeks had a fable, which was not only pleasing but instructive. They said that Neptune, having a dispute with Minerva as to the name of the city of Athens, it was decided that which ever gave the best present to mankind should have the privilege of conferring one. Neptune struck the shore, out of which sprang a horse, but Minerva produced an olive tree, and therefore the preference was given to her, because peace, of which the olive is the symbol, is infinitely better than war, of which the horse was considered a type. The olive branch of Noah we cannot forget. Some have supposed that the tops of the olive trees might alone be visible from the place where the ark was then floating, though it is only a tree of moderate height; but if the dove saw a great number of other trees appear above the water, it was natural for it to repair to the olive tree in preference to others, because there it had been accustomed to find shelter and food. With peculiar propriety the olive leaf, or branch, was chosen by God as a sign to the patriarch of the abatement of the deluge, and from this, perhaps, it became the emblem of peace to various and distant nations. Thus Milton, in his Ode on the Nativity:—

> But he her fears to cease,
> Sent down the meek-eyed Peace;
> She, crown'd with olive-green, came softly sliding
> Down through the burning sphere,
> His ready harbinger,
> With turtle wings the amorous clouds dividing.

Captain Cook found that green branches carried in the hand, or stuck in the ground, were thus regarded by all the islanders, even in the South Sea. True piety has, also, been beautifully exhibited under this figure:—

> "Oh! who could bear life's stormy doom,
> Did not thy wing of love
> Come brightly wafting, through the gloom,
> Our peace-branch from above.
> Then sorrow, touched by thee, grows bright,
> With more than rapture's ray,
> As darkness shows us worlds of light
> We never saw by day."

Species.—Of the genus Olea there are known about a dozen well marked species, the most important of which is the Olea Europæa, now under consideration. In China, the Olea fragrans is much esteemed; its leaves and blossoms are highly aromatic, and are employed by the Chinese at once to adulterate and flavour their teas. The name *Olea* is evidently derived from the Greek appellation, ελαια. *Olea* is commonly applied to the tree, *oliva* to the fruit, and *oleum* to the oil expressed.

Varieties.—Of the European Olive, there are several varieties, distinguished chiefly by the shape of the leaves, or by the size, colour, and form of the fruit. Several of these appear to have been known to the ancients; thus Virgil enumerates three varieties. Cato mentions eight, and Columella ten. The long-leaved variety is chiefly cultivated in the south of France, and in Italy, on account of the fine oil which it affords; and the unripe fruit is also highly esteemed, when pickled. The broad-leaved is chiefly cultivated in Spain, where the trees grow to a much larger size than the Provence Olive, and yield a larger fruit; but the oil is

said to be rank and disagreeable. Besides these, there are several other varieties of the Olive tree; as the iron-coloured, the twisted-leaved, the box-leaved, African, Lucca, &c.

Culture.—The cultivated Olive came originally from Asia; it grows abundantly about Aleppo and Lebanon. It became early naturalized in various parts of Italy, Spain, and France. In Gibbon's "*Decline and Fall*," chap. i. he quotes Pliny for the following fact: "Two centuries after the foundation of Rome, both Italy and Africa were strangers to that useful plant: it was naturalized in those countries, and at length carried into the heart of Spain and Gaul." "Its usefulness, the little culture it requires, and the otherwise barren situations which it renders productive, quickly spread it over the western face of the Appennines. The suckers are removed from the parent tree at all seasons; but the best is in spring and autumn, when the grounds are ploughed, and sometimes, if the trees are thinly scattered, sown with corn and lupines. Otherwise, the earth is merely loosened round the roots, and, in some cases, manure is laid round them.[a] The young olive plant bears at two years old; in six years it begins to repay the expense of cultivation, even if the ground is not otherwise cropped. After that period, in good years, the produce is the surest source of wealth to the farmer, and the tree rivals the oak in longevity; so that the common proverb here is, 'if you want to leave a lasting inheritance to your children's children, plant an olive.' There is an old olive tree near Gerecomio, which a few years back yielded 240 English quarts of oil: yet its trunk is quite hollow, and its empty shell seems to have barely enough hold in the ground to secure it against mountain storms."—Maria Graham's *Three Months near Rome*, p. 49.

According to Humboldt, the Olive is cultivated with success in every part of the old world, where the mean temperature of the year is between 58° and 66°, the temperature of the coldest month not being under 42°, nor that of the summer below 71°-73°. These conditions are found in Spain, Portugal, the South of France, Italy, and Turkey. The Olive also flourishes on the Northern Coast of Africa, but is not found south of the Great Desert. In Europe it extends as far north as latitude 44½°, in America scarcely to latitude 34°, so much greater is the severity of the winter on the other side of the Atlantic. Maillet says, that the olive tree thrives greatly in Egypt, and very commonly produces fruit as large as walnuts. Hasselquist states, that he ate olives at Joppa which were said to have grown on the Mount of Olives, near Jerusalem, and that they were the best he had tasted in the Levant. He saw olive trees in Galilee also, but none further than the mountain on which our Lord's sermon is supposed to have been delivered. They are found, however, in various parts of the earth. In the neighbourhood of Quito, situated under the equator, at the height of eight thousand feet above the level of the sea, where the temperature varies less than even in the island climates of the temperate zones, the Olive attains the magnitude of the oak; but never produces any fruit."

The proper time for gathering olives for the press, is on the eve of maturity. If delayed too long, the next crop is prevented, and the tree is productive only in the alternate years. At Aix, where the olive harvest takes place early in November, it is annual; in Languedoc, Spain, and Italy, where it is delayed till December or January, it is in alternate years. The quality of the oil also depends upon the gathering of the fruit in the first stage of its maturity. It should be carefully plucked by the hand; and the whole harvest completed, if possible, in a day.[b]

In Provence and Italy, the oil is drawn from the olives by presses or mills. The fruit is gathered when at its utmost maturity in November, when it begins to redden; being put under the mill, as soon as gathered, care is taken that the mill-stones are set at such a distance, that they do not crush the nut of the olive. The pulp covering the nut or stone, and containing the oil in its cells, being thus prepared, is put into bags made of rushes, and moderately pressed: and thus is obtained a considerable quantity of a greenish semi-transparent oil, which, from its superior excellence is called virgin oil. The *marc* remaining after the first pressure is broken to pieces, is moistened with water, and returned to the press, upon which there flows out a mixture of oil and water, which spontaneously separate by rest. This oil, though inferior to the former, is of good quality, and fit for the table. The marc, being again broken to pieces, well soaked in water, and fermented in large cisterns, is again submitted to the press, by which is obtained a third oil, that is valuable to the soap boiler, and other manufacturers. In Spain, the olives, instead of being gathered, are beaten down, so that the ripe and unripe ones are mixed; and to these are added such as have fallen of themselves, and are therefore more or less decayed. All these are thrown together in a heap, and soon ferment: the olives in this state are ground and pressed, and thus is produced, with little trouble, a large quantity of oil, of a rank, disagreeable flavour. It is probable that the Spaniards derive their process from the Moors: for we find the same method described in Jackson's History of Morocco.

Olive Oil in Spain and Italy supersedes the use of butter and cream, and "the inhabitants of the south of Europe feel at least as much dislike to the produce of the dairy as we may feel to their general use of oil;" (*Barton;*) indeed a line may be drawn which geographically separates the countries of butter and oil, which although admitting some exceptions, is on the whole sufficiently correct.

[a] This does not agree with Virgil, who says, *Georg.* i. l. 507. "No dressing they require, and dread no wound."

[b] See Hillhouse on the Olive Tree.

According to Malte-Brun this line extends from the Pyrenees through the Cevennes, the Alps and the Hæmus. And so marked is the difference of climate on either side of this boundary, as shewn by the change of vegetation, that, as Barton observes in his admirable essay on the geography of plants, "a traveller from the north crossing this chain of mountains for the first time is surprised and delighted at the new aspect of nature. Gigantic plants of the grass tribes (Arundo Donax) are seen rising to the height of twenty feet and upwards, the air is perfumed with the blossoms of the orange and lemon trees; which with the myrtle and pomegranate grow wild among the rocks. The American aloe here blooms in the open air, the Chamærops affords the first specimen of the magnificent tropical family of palms. It may perhaps be asserted without exaggeration that the appearance of vegetation exhibits a less striking change in travelling from Piedmont to Lapland, than in crossing the maritime alps from Piedmont to the gulf of Genoa. On the southern side of those mountains the vivid green of our meadows and forests is replaced by the dusky tint of the olive and the evergreen oak, which might perhaps be termed sombre, if not contrasted with the intensely dark indigo colour of a deep and tranquil sea, undisturbed by tides and resting on a rocky bottom. Nor is the olive itself by any means destitute of beauty. It has been compared to a willow: it differs however very materially in colour, having none of that sickly hue of blueish green which gives such a peculiar coldness to the landscapes of some of the Dutch painters. The upper side of the leaf has precisely the tint familiarly known as *olive*: the under side is of a shining whiteness, and as the foliage is turned up by the lightest breeze, its progress over the valleys covered with olive gardens becomes visible in the form of a silver cloud gliding across the landscape."

The Tuscans were the first that exported olive oil, and thus it obtained the name of Florence oil. The province of Suse, in Morocco, produces great abundance of what is said to equal in quality the best of this kind, and of the origin of a large plantation of olive trees in the neighbourhood of Messa, Mr. Jackson gives the following singular account. "I learnt from the Viceroy's aid-de-camp, who attended me, that one of the kings of the dynasty of Saddia, being on his journey to Soudan, encamped here with his army; that the pegs with which the cavalry picketed their horses were cut from the olive trees in the neighbourhood; and that these pegs being left in the ground, on account of some sudden cause of the departure of the army, the olive trees in question sprang up from them. I confess, while I acknowledged the ingenuity of the idea (for the disposition of the trees exactly resembled the arrangement of cavalry in an encampment,) I treated it as fabulous: some time afterwards, however, the following circumstance occurred, which induced me to think the story was not only plausible, but very credible. Having occasion to send for some plants for a garden which I had at Agadeer, or Santa Cruz, the foula (gardener) brought, amongst other things, a few bits of wood, without any roots or leaf, about eighteen inches long and three in circumference, which he with a large stone, knocked into the ground. Seeing the fellow thus employed, I asked him what he meant by trifling in that way, 'I am not trifling,' said he, 'but planting your pomegranate trees.' I began to take them out of the ground; but some persons who were near assuring me that it was the mode in which they were always planted, and that they would (with the blessing of God) take root and shoot forth leaves the next year, I was at length prevailed on to leave a few in the ground, merely for experiment; and they certainly did take root, and were in a fair way of becoming good trees when I left Santa Cruz."

The fruit in a pickled state, is sent in great quantities from Leghorn, Naples, Genoa, and Marseilles, to England; that from the two latter places is the most esteemed. *Pickled olives* are prepared from the unripe fruit, by repeatedly steeping them in water, to which quick lime or soda is added to shorten the process. Afterwards, they are soaked in pure water, and then taken out and bottled in a solution of common table salt with or without an aromatic. They are eaten abroad as a whet before and during the principal meals, and in this country chiefly at the dessert. The finest kind of the prepared fruit is called by the merchants *Picholine*, after one Picholini, who first discovered the art of pickling olives. The wood of the olive tree is beautifully veined, and has an agreeable smell; it is in great esteem with cabinet-makers, on account of the fine polish of which it is susceptible.

Qualities and Chemical Properties.—The best oil comes from Provence; but that which we have in this country is generally from Lucca and Florence. Samos has lately furnished us with some also. When recently drawn, virgin oil has a bland, almost mucilaginous taste, with a slight but agreeable flavour. It is unctuous to the touch; will not combine with water; is inflammable; and insoluble in alcohol. Its specific gravity is 9153: it boils at about 400°, Fahr., and congeals at 36° or 38°. When exposed to the air, in an open vessel, a white fibrous albuminous substance is deposited, and the supernatant oil becomes clear, and of a dilute yellow colour: and when this oil is poured off into another vessel, a second deposition occurs, and the oil thus obtained, being put into clear glass bottles, may be kept for a convenient time, without undergoing any change. But if the oil be allowed to stand on the white matter, it becomes in a few weeks very rancid: nor can the common oil, even under proper management, be preserved in casks longer than a year or two. The disposition to freeze, renders it improper for lamps, especially in cold countries: but by previously exposing it in an open clear glass to the sun, it may be so far amended in this respect, as

to continue fluid at 21°. According to the observations of Dr. Clarke, of Cambridge, this oil crystallizes in rectangular four-sided prisms with square bases.

Chevreul, in his *Recherches sur les Corps gras,* has shewn that fixed oils consist of two proximate principles, upon the relative proportions of which in a great measure depend their relative degrees or fluidity, solidity, &c., and therefore that, as afforded by nature, they are doubly compound bodies. By exposure to a low temperature these principles separate, the one solidifying much sooner than the other, which remains fluid at very low temperatures indeed. The first, Chevreul has named Stearine, from στεαρ, suet, in which it is the chief ingredient. It likewise abounds in the butter nut oil, and in the palm oil, which are solid at all ordinary temperatures. The second he has called Elaine (from ἔλαιον oil.) This principle may be obtained in a state of considerable purity by pressing the stearine of frozen oil between layers of bibulous paper, and then squeezing the paper under water, when the Elaine collects upon the surface. In this state of purity it is peculiarly fitted for greasing the wheels of watches, and other delicate machinery, since it does not thicken or become rancid, by exposure in the air, and requires a cold of about 20° F. for congelation.

The olive is remarkable for containing a fixed oil in the pulp of its fruit. Fixed oils are almost invariably confined to the seeds of plants, as in the poppy, almond, linseed, rape seed, &c., &c., the drupes of the olive and the melia being perhaps the only exceptions.

Adulterations.—Olive Oil is said to be sometimes adulterated with poppy oil, though such an occurrence is probably rare in this country. Four methods, however, have been proposed for detecting the fraud; and as they have reference to some characteristic properties of olive oil, they deserve notice. The first is the *beading:* if we shake pure olive oil in a phial half filled with it, the surface of the oil soon becomes smooth by repose; whereas when poppy oil is present, a number of air-bubbles (or *beads,* as they are termed) remain. The second method is by *congelation.*—olive oil more readily congealing than poppy oil. The third method is that founded on the conducting power of the oil for electricity. The fourth method is by *nitrate of mercury.* If recently made nitrate of mercury be mixed with twelve times its weight of pure olive oil, and the mixture strongly agitated, the whole mass becomes solid in the course of a few hours. With poppy or other oils, the nitrate of mercury does not form a solid compound, and therefore when they are mixed with olive oil, we judge of their presence and quantity by the degree and quickness of solidification of the suspected oil.

Medical Properties and Uses.—The medical properties of olive oil are those of a demulcent, emollient, and laxative. In catarrh and other pulmonary affections, it has been used as a demulcent, in the form of emulsion: but the oil of almonds is more generally employed. It is occasionally recommended to be internally administered for worms; and to lubricate, and sheath, the mucous membrane of the stomach, from the action of acrid poisons, particularly of cantharides. From the experiments, however, of Dr. Pallas, repeated by Orfila, it appears that oil possesses the property of dissolving the active principle of *cantharides,* and augments the danger instead of preventing it. And Dr. Whiting has shewn satisfactorily in a communication made to the Medico-Botanical Society of London, that its admixture in small quantities with morphia, renders the peculiar effects of that medicine more regular and certain. At one time it was supposed to possess antidotal properties for arsenical poisons; and Dr. Paris tells us, that the antidote on which the men employed in the copper smelting works and tin burning-houses in Cornwall, rely with confidence, "whenever they are infested with more than an ordinary portion of arsenical vapour, is sweet oil, and an annual sum is allowed by the proprietors, in order that it may be constantly supplied." There is, however, no reason to believe that its agency is more than mechanical. It is applied externally to prevent the contagious influence of the plague. Mr. Jackson, in his History of Morocco, narrates many individual cases of its success, even after infectious symptoms had manifested themselves; and as his veracity cannot be impeached, his advice in the absence of better treatment, is entitled to attention, although the French physicians do not appear to rely much upon its virtue. The application should be by long continued friction; and when successful, it is followed by profuse and general perspirations, that are said to afford immediate relief. In Malta the frictions with oil were found beneficial only in the first and last stages of the disease; but were of no advantage when it was at its height. The internal and external use of olive oil was formerly celebrated for the bite of the viper, rattlesnake, and other venomous serpents; though little reliance is now placed in it. The use of it, as a condiment, and in the arts, is too well known to require any comment.

Besides these, there are other medicinal uses to which olive oil has been applied, but which it is sufficient merely to allude to. Such are, the internal exhibition of large quantities of it in arthritic pains,—the employment of oil frictions in dropsy, and the anointing the body with warm olive oil as a preventive of plague.

Lastly, we may mention the extensive use made of olive oil in various ointments, cerates, liniments, and plasters.

Dose and Administration.—As a laxative, the dose is one or two fluid ounces. As an emollient and demulcent, it is sometimes taken in the form of an emulsion, made with either alkali or gum.

Citrus Aurantium.

CITRUS AURANTIUM.—SWEET ORANGE.

CLASS EIGHTEENTH, POLYADELPHIA.—ORDER THIRD, ICOSANDRIA.

NATURAL ORDER, AURANTIACEÆ.——THE ORANGE TRIBE.

THE Orange tree is an evergreen, originally a native of the warmer parts of Asia, though it has been long naturalized in the south of Europe, as well as in the West India islands, and the tropical parts of America. The specific name is derived from aurum, gold, from the colour of the fruit. It is supposed by some to be also indigenous to the Canary islands or Hesperides, and its fruit to be the golden apples which the daughters of Hesperus caused to be so strictly guarded by a dragon: under this idea Ventenat changed the name of the natural order to which it belongs Hesperideæ, and hence, likewise, the fruit is called Hesperidium:

> "Thus was this place,
> A happy rural seat of various view:
> Groves whose rich trees wept odorous gums and balm;
> Others whose fruit burnish'd with golden rind,
> Hung amiable, Hesperian fables true,
> If true, here only, and of delicious taste:—MILTON.

The orange is supposed to have been introduced into Italy not earlier than the fourteenth century, above a thousand years after the citron. Parkinson, writing in the beginning of the seventeenth century, says, "The orange hath abiden with some extraordinary looking and tending, when neither citron nor lemon trees could be preserved any length of time." The orange trees he alludes to were those of Beddington, in Surrey, introduced from Italy by a knight of the noble family of the Carews, and the first that were brought into England; they were planted in the open ground and placed under a moveable cover in the winter months. Sir Francis Carew is the knight above referred to, who introduced orange trees into England, in the reign of Elizabeth, but whether he imported plants, or raised them from seeds brought home by Sir Walter Raleigh, has not been satisfactorily ascertained. These were very fine trees, fourteen feet high, the girt of the stem twenty-nine inches, and the spreading of the branches one way nine feet, and twelve feet another. Evelyn informs us that they were neglected in his time during the minority of their then owner; they were killed by the great frost of 1739—40; they were planted before 1595.

In this country the orange is chiefly prized as a green-house plant, and there are some splendid specimens in the conservatories at Nuneham Courtenay, in Oxfordshire, at Smorgony, in Glamorganshire, at the Wilderness, in Kent, and at other places. "In the south of Devonshire, and particularly at Salcombe, one of the warmest spots in England, Loudon says, there may be seen in a few gardens, orange trees that have withstood our winters in the open air for upwards of a hundred years; the fruit is as large and fine as any in Portugal. Trees raised from seed and inoculated on the spot, are found to bear the cold better than those which are imported. In our hot houses the trees produce their pure white and very fragrant flowers in June, and after the first season of flowering, blossoms and fruit appear together on the same plant, the latter remaining a year, or fifteen months, on the tree before it becomes ripe. "As a dessert fruit the orange is well known. The varieties most esteemed are the China, Portugal, and Maltese. The fruit is also used in confectionary, both ripe and when green, and not larger than a pea; it forms various liquors and conserves, either alone or with sugars, wines or spirits. In cooking it is used to perfume a number of dishes. It is used to form various perfumes and pomades, and the flowers distilled produce orange water, used in cooking, medicine, and as a perfume; but the chief use of the sweet orange is for dessert. There are nineteen varieties of the orange enumerated by Risso. All the species of Citrus may be propagated by seeds, cuttings, layers, by grafting, and budding. The object of raising plants from seed is stock for grafting or budding, or for new varieties. Pruning orange trees in England does not differ from that given to other greenhouse plants, and the consequence is handsome bushes or trees. But when orange trees are cultivated for the sake of their fruit, the branches ought to be kept thin, so as to admit of sun and air. The blossoms of most of the Citrus kind are produced in the form of terminating peduncles

on the wood of the current year, and hence the object of the pruner ought to be, to encourage the production of young wood in every part of the tree. In France they thin the flowers, which by that means they are enabled to use for distillation. The thinned fruit is used in confectionary. The thinning of the fruit, however, will depend upon the state of the trees ; those at Bromley Hill in Kent, never require any thinning, where the trees are very fine, and loaded with peculiarly large fruit. The coccus and red spider are the chief insects injurious to the citron tribe : both to be removed by water applied with a brush or sponge. Mr. Mean, early in March, when he top dresses his plants, applies a copious washing with the engine ; then shuts up the house close for three or four hours, which produces a strong heat, as high as 70° which effects the destruction of the red spider, while the stems and leaves are wiped with a wet sponge, to remove other insects and dirt. At Rienes in France, where the fruit of the orange is reared for sale, it is gathered every year, generally in May. If not gathered then, it will hang on the tree for two or three years longer ; but when the young fruit is green and swelling, the old ripe fruit becomes somewhat shrivelled, and almost void of juice. But as the new fruit begins to arrive at maturity, the juice begins to return to the old fruit, so that both old and new crops are in perfection the following May. In this way at Genoa the fruit is sometimes allowed to remain on three years, and being then gathered, has a peculiar sub-acid sweetness and flavour, and is sold at a higher price. In conservatories the orange tree generally requires fifteen months to ripen its fruit, and hence both green and ripe fruit are together on the tree. In gathering for the table in this country, the fruit should be carefully cut off with a few leaves attached, and thus garnished sent to the dessert. By allowing the fruit to remain, the trees will at all times have green and yellow fruit, which, with the showy leaves and fragrant white blossoms, form in spring a charming ornament. The wood of the Citrus tribe is universally hard and compact ; they abound in a volatile, fragrant, bitter, exciting oil, if to this be added the excellence of their wood, and the fragrance and beauty of their flowers, I know not if an order more interesting to man can be pointed out. The productiveness of the common orange is enormous. A single tree at St. Michael's has been known to produce 20,000 oranges fit for packing, exclusive of the damaged fruit and waste, which may be calculated at one third more.

The China Orange contains a large quantity of saccharine matter and mucilage, united to an agreeable malic acid; hence it is much employed as a wholesome, cooling, and antiseptic article of food for the sick, particularly in febrile, inflammatory, or scorbutic affections. Eaten, however, in too large a quantity, the orange is liable to produce great disorder of the stomach and bowels, colic, diarrhœa, and cholera : and, like other sub-acid fruits, is hurtful in calculous complaints. This country is chiefly supplied with oranges from the Peninsula, where they are grown for exportation ; they are likewise brought in great perfection from Malta, Italy, the West India Islands, and other places, but the best come from the Azores, Portugal, and Spain. The fruit is imported in slight chests and boxes, and each orange carefully wrapped in a separate paper. The orange trade carried on by this country is (as Mr. M'Culloch observes) of very considerable value and importance. Oranges are never much more, and often much less expensive than most of our superior or even common domestic fruits, while they are perhaps the most refreshing and wholesome of those of warmer climates, and brought here in such abundance and perfection, as to give a tropical character to our markets and desserts. It is believed that fully a third of the whole quantity imported is consumed in London and its environs, which must on the whole have a very beneficial effect on the health of so large and densely populated a town. It is not possible to form any estimate of the number of persons employed in the importation and sale of oranges, but they must certainly be great.

Orange trees require a large share of air and light ; the soil should be rich and light. At Genoa and Florence they are grown in a strong yellow clay, richly manured ; this is considered by Italian gardeners to be best suited to the Orange tribe.

Height 10 to 30 feet—Flowers, May, July.—Cultivated, 1595.

The orange, with a vernal face,
Wears ev'ry rich autumnal grace ;
While the young blossoms here unfold,
There shines the fruit like pendent gold.
Citrons their balmy sweets exhale,
And triumph in the distant gale.

Cotton's Vision of Pleasure.

Osbeckia canescens.

OSBECKIA CANESCENS.—HOARY OSBECKIA.

Class III. OCTANDRIA.—Order I. MONOGYNIA.

Natural Order, MELASTROMACEÆ.

*Character of the Genus, Osbeckia.**—Tube of the Calyx ovate or oblong, joined with the base of the ovarium, frequently clothed with setæ palmate at the base, or a stellate pubescence, very rarely a simple pubescence, limb with four or five divisions, alternating with the appendices. Petals of the corolla four or five, inserted in the throat of the calyx, ovate or obovate, and alternate with the divisions of the calyx. Stamens eight or ten, inserted with the petals, somewhat equal. Anthers oblong, linear somewhat bowed, rostrate, one-pored, connective thickening to the base, with two short spurs, or ears projecting forward, of absent, four or five celled, many-ovuled. Style filiform, thickening beneath the apex. Stigma punctiform. Capsule dry, including the truncated tube of the calyx, four or five celled, loculicidal, four or five valved, Seeds many, cochleate.

Description of the Species, Osbeckia Canescens.—Stem somewhat shrubby, square, unbranched, about two feet and a half high, covered thickly with a stellate pubescence, giving it a roughness, which is very perceptible in the touch. Leaves heart-shaped at the base, opposite, decussate, shortly petiolate, and densely covered on each side with the same stellate pubescence which is found on the stem, prominently from five-seven nerved. Flowers shortly pedunculate, large, and showy, of a delicate and pleasing purple colour, arranged in a paniculate raceme. Bracts large, pinkish, half the length of the calyx, pubescent, concave, half enclosing the alabastum, very deciduous. Petals four, inversely heart-shaped, notched at the end, of short duration. Calyx covered with a stellate pubescence, divided into four parts, each part regular ovate, acuminate persistent, alternate with the divisions are found subulate appendages, which are pubescent, similar to the other parts of the calyx. Filaments yellow, decidous, ten, attached to an elevated rim situate at the base of the divisions of the calyx. Connective longer than the filaments, curved, bifid at the base, of a bright purple colour, marked with yellow at the base. Anthers of a purplish blue, half the length of the connective. Pollen white, smooth, having a transparent line in the centre. Style twice as long as the stamens and anthers, curved, pinkish, smooth. Stigma situate at the extreme apex. Ovarium five-sided, pubescent, five-celled, five-valved. Seeds numerous, attached to placentæ, arising from the centre of the ovarium, and situate in the centre of each valve.

Popular and Geographical Notice.—The genus Osbeckia is composed of species which are exceedingly handsome and showy, as may be witnessed by the one now figured. They are all shrubs, or suffruticose plants, inhabiting the tropical parts of Asia, Africa, and America.

Introduction; Where grown; Culture.—This plant was introduced from the Royal Berlin Botanic Garden into the Birmingham Horticultural Gardens, in the year 1838, and from a plant in the latter establishment our drawing was taken. It was there treated as a stove plant, but possibly may even be suitable for ornamenting the open ground during the autumn months. It flowers in August and September. It should be planted in loam and peat, and may be increased by cuttings, and also by seeds.

Derivation of the Names.—The generic name is given in honour of Mr. P. Osbeck, a Swedish clergyman and naturalist; the specific, canescens, from its hoary appearance.

William Howitt has some picturesque remarks on the characteristic appearances of April, prefaced by an apposite quotation from the sweet singer of Israel.

> Thou visitest the earth, and waterest it; thou greatly enrichest it with the river of God, which is full of water; thou preparest them corn, when thou hast so provided for it.
>
> Thou waterest the ridges thereof abundantly; thou settlest the furrows thereof; thou makest it soft with showers; thou blessest the springing thereof.
>
> Thou crownest the year with thy goodness, and thy paths drop fatness.
>
> They drop upon the pastures of the wilderness, and the little hills rejoice on every side.
>
> The pastures are clothed with flocks, and the valleys also are covered over with corn; they shout for joy; they also sing.
>
> Psalm lxv. 9—13.

The month of April is proverbial for its fickleness; for its intermingling showers, and flitting gleams of sunshine: for all species of weather in one day; for a wild mixture of clear and cloudy skies, greenness and nakedness, flying hail and abounding blossoms. But to the lover of nature, it is not the less characterized by the spirit of expectation with which it imbues the mind. We are irresistibly led to look forward, to anticipate, with a delightful enthusiasm, the progress of the season. It is one of the excellent laws of Providence, that our minds shall be insensibly moulded to a sympathy with that season which is passing, and become deprived, in a certain degree, of the power of recalling the images of those which are gone by;

* For the figure and and account of the Osbeckia, as well as of the Goldfussia in our last number, we are indebted to Mr. Maund's attractive work "*The Botanist.*"

whence we reap the double advantage of not being disgusted with the deadness of the wintry landscape, from a comparison with the hilarity of spring: and when spring itself appears, it comes with a freshness of beauty which charms us at once with novelty, and a recognition of old delights. Symptoms of spring now crowd thickly upon us: however regular may be our walks, we are daily surprised at the rapid march of vegetation, at the sudden increase of freshness, greenness, and beauty; one old friend after another starts up before us in the shape of a flower. The violets which came out in March in little delicate groups, now spread in myriads along the hedge-rows, and fill secluded lanes with their fragrance. In some springs, however, though most abundant, yet, perhaps owing to the dryness of the weather, they are almost scentless. The pilewort, or lesser celandine, too, is now truly beautiful, opening thousands and tens of thousands of its splendidly gilt and starry flowers along banks, and at the feet of sheltered thickets; so that, whoever sees them in their perfection, will cease to wonder at the admiration which Wordsworth has poured out upon them in two or three separate pieces of poetry. Anemones blush and tremble in copses and pastures; the wild cherry enlivens the woods; and in the neighbourhood of Nottingham the vernal crocus presents a unique and most beautiful appearance, covering many acres of meadow with its bloom; rivalling whatever has been sung of the fields of Enna; gleaming at a distance like a perfect flood of lilac, and tempting very many little hearts, and many graver ones too, to go out and gather.

The blossom of fruit-trees presents a splendid scene in the early part of the month, gardens and orchards being covered with a snowy profusion of plum-bloom; and the blackthorn and wild plum wreathe their sprays with such pure and clustering flowers, that they gleam in the shadowy depths of woods as if their boughs radiated with sunshine. In the latter part of the month, the sweet and blushing blossoms of apples and the wilding fill up the succession, harmonizing delightfully with the tender green of the expanding leaves, and continuing through part of May.

The catkins or pendulous flowers of many of the trees are now peculiarly beautiful; those of the birch hang like golden tassels, and especially where these elegant trees abound, as they do in the romantic defiles of the Trosachs; ranging themselves stem above the silvery stem up the rocky heights, they present a lovely aspect. Those of the Tacamahac hang large and abundant, and with the young unfolding leaves diffuse a fine aromatic odour. The ash-trees are quite black with their large conglomerated buds, which gradually unfold themselves into tufts of fibres, whence the keys afterwards depend. The alder too is covered as in the end of last month, with its dark bunches; and the elm is perfectly shrouded in its hop-like blossoms till the end of May. The flowering of this tree, so striking and beautiful, yet so little noticed by poets, has been introduced into some beautiful lines referring to this season:—

> When daisies blush, and windflowers wet with dew;
> When shady lanes with hyacinths are blue;
> When the elm blossoms o'er the brooding bird,
> And wild and wide the plover's wail is heard;
> When melts the mist on mountains far away,
> Till morn is kindled into brightest day.——Author of "Corn Law Rhymes."

But perhaps the most delightful of all the features of this month, are the return of migratory birds, and the commencement of building their nests. Not only the swallow tribe, the cuckoo, and the nightingale, whose arrival is noticed by almost everybody, but scores of other old acquaintances suddenly salute you in your walks with their well-remembered aspects and notes. White-throats, whinchants, reed-sparrows, &c. perched on their old haunts, and following their diversified habits, seem as little fatigued, or strange, as if they had worn invisible jackets all winter, and had never left the spot. The sweet voice of the turtle-dove is again heard in the woods of the southern counties. There is something truly delightful to the naturalist in the beauty of birds' nests, and the endless varieties of colours, spots, and hieroglyphic scrolls, on their eggs; the picturesque places in which they are fixed, from the lapwing's on the naked fallow, to that of the eagle in its lofty and inaccessible eyrie; in the different degrees of art displayed, from the rude raft of a few sticks, made by the wood-pigeon, to the exquisite little dome of the golden-crested wren, or the long-tailed titmouse (parus caudatus,) a perfect oval stuck between the branches of a tree, having a small hole on one side for entrance; the interior lined with the most downy feathers, enriched with sixteen or seventeen eggs, like small oval pearls; and the exterior most tastefully decorated with a profusion of spangles of silvery lichen on dark-green moss.

The following lines, which describe the opening days of April, are from a poem by Warton:—

> Mindful of disaster past,
> And shrinking at the northern blast,
> The fleety storm returning still,
> The morning hoar, the evening chill;
> Reluctant comes the timid spring.
> Scarce a bee, with airy ring,
> Murmurs the blossom'd boughs around
> That clothe the garden's southern bound:
> Scarce a sickly straggling flower
> Decks the rough castle's rifted tower;
> Scarce the hardy primrose peeps
> From the dark dell's entangled steeps.
> - - - - - - - - - - - - - - - - - -
> Fringing the forest's devious edge
> Half rob'd appears the hawthorn hedge;
> Or to the distant eye displays
> Weakly green its budding sprays.

Passiflora Carulea.

Class PENTANDRIA.——Order TRIGYNIA.

Natural Order PASSIFLOREÆ.——PASSION FLOWER TRIBE.

The Passion Flowers and their allies, associated to form this type, are herbaceous, or shrubby plants, rarely trees, with often twining scandent stems, and alternate simple petiolate leaves, either entire or lobed, and usually furnished with glands and stipules.

The inflorescence is axillary, and the peduncles, which in the non-scandent species are all floriferous, become in part in the climbing ones converted into tendrils. The flowers are showy, regular, and united, rarely separated by abortion, usually solitary, seldom aggregate, and for the most part invested with a triphyllous involucrum.

The calyx is free, the sepals 5 - 10, the external ones herbaceous, and the inner petaloid, they are imbricate in æstivation, sometimes irregular, cohere by their ungues, and constitute a tube of variable length, which is lined by filamentous or annular processes, forming a nectary. The petals when present are five in number, and exserted from the faux of the calyx external to the ring of filaments; often metamorphosed into the filamentous nectary. The torus lines the bottom of the calyx, and is produced to form a cylindrical column, which bears the germen, and from which the stamens are exserted; the stamina are definite (5), in Smeathmannia alone indefinite, surrounded by numerous barren filaments, forming a radiant circle, arranged in one or two series, thus accounting for the indefinite stamens of Smeathmannia. The filaments are shortly monodelphous and opposite the external lobes of the calyx, the anthers versatile, or rather peltate, being attached to the filaments by their back; reversed and thus by situation extrorse, although in reality introrse, two celled and dehiscent lengthwise; the germen is free, stipitate, one celled, with three, rarely five, parietal placentæ, and many ovules; the styles are short or none, and the stigmata are equal in number to the trophosperms, thick and lobed or dilated. The fruit is baccate or capsular, either naked or invested by the calyx, and elevated on the stalk-like torus. It is three, rarely five, valved, one celled, when capsular dehiscent by valves, when baccate indehiscent: the parietal placentæ (3 - 5 in number,) are polyspermous, nerviform, and attached to the middle of the valves; the seeds are pendulous, rarely erect, and covered either by membranous or pulpy arillus (seldom exarillate); the testa is crustaceous, and the tegmen membranaceous; the albumen is fleshy but thin, and often scrobiculate; the embryo is straight and included; the radicle round and turned towards the hilum, and the cotyledons flat and foliaceous, seldom fleshy.

Hence, selecting the chief differential characters, the Passifloraceæ are subcorollaceous grossulinæ, with radiant nectaries; a stipitiform staminiferous torus; definite, many seeded placentæ; and scrobiculate albumen.

The Passifloraceæ, although in general innoxious, are suspicious plants for one species. Passiflora Quadrangularis, is known to be deleterious, and the others have not been sufficiently examined to allow their innocence to be affirmed, notwithstanding, the fruit of most of them, even of the noxious one, is eatable.

The Passion Flowers are not only curious, but most beautiful plants; they grow well and blossom freely in this country, yet they seldom ripen their fruit. Several hybrid varieties have been produced by art, which exceed in beauty any of the natural species. It may be propogated from seeds, cuttings, or layers; it is said that layers or cuttings seldom produce fruit. Its situation should be with a southern aspect,

the root protected with straw during the winter. It was discovered in the Brazils, brought to Europe, and became a denizen of our gardens in the year 1699.

The name Passion Flower owes its origin to some imaginative Jesuit, who fancied he had found an allegorical representation of our Saviour's passion, or at least, of the instruments of torture, as well as other attendant circumstances, in the structure of blossoms, leaves, and tendrils of these curious plants. The leaves are compared to the *spear* or the hand which pierced our Saviour's side; the tendrils to the *cords* that bound his hands, or the *whips* that scourged him; the ten petals to the *ten apostles*, Judas having betrayed and Peter deserted him; the pillar in the centre to the *cross* or *tree*; the stamens to the *hammers*; the styles to the nails; the inner circle round the central pillar, to the *crown of thorns*; the radiance, to the *glory*; the white in the flower to an emblem of his *purity*; and the blue is a type of *heaven.*

Hervey in his Meditations on the Flower Garden, vindicates the supposed resemblance, with the following words.

"I have read in a profane author, of flowers inscribed with the names of kings, but here is one emblazoned with the marks of the bleeding prince of life. I read in the inspired writings of apostolic men, who bore about, in their bodies, the dying of the Lord Jesus; but here is a blooming religioso, that carries apparent memorials of the same tremendous and fatal catastrophe."

Who would have expected to find such a tragedy of woe, exhibited in a collection of the most delicate delights? Or, to see Calvary's horrid scene pourtrayed on the softest ornaments of the garden? Is nature then actuated by the noble ambition of paying commemorative honours to her agonizing sovereign? Is she kindly officious to remind forgetful mortals of that miracle of mercy; which it is their duty to contemplate, and their happiness to believe? Or, is a sportive imagination, my interpreter, and all the supposed resemblance, no more than the precarious gloss of fancy? be it so: yet even fancy has her merit, when she sets forth in such pleasing imagery, the crucified Jesus. Nor shall I refuse a willing regard to imagination herself; when she employs her creative powers to revive the sense of such unparalleled love, and prompt my gratitude to so divine a friend.

Among all the beauties, that shine in sunny robes, and sip the silver dews; this, I think, has the noblest import, if not the finest presence; were they all to pass in review, and expect the award of superiority from my decision, I should not hesitate a moment; be the prize assigned to this amiable candidate, which has so eminently distinguished and so highly dignified herself, by bearing such a remarkable resemblance to the righteous branch; the plant of renown,

> Flowers—bright Flowers!—how many a memory springs
> Back to the heart, in silent hours, and brings
> The vivid crowding thoughts of hopes and fears,
> The rainbow colour'd dreams of other years.

1. Pisum Sativum. *2. Lathyrus Odoratus.*

LATHYRUS ODORATUS, SWEET PEA.—PISUM SATIVUM, CULTIVATED PEA.

CLASS XVII. DIADELPHIA.——ORDER III. DECANDRIA.

NATURAL ORDER, LEGUMINOSÆ.—THE PEA TRIBE.

LATHYRUS ODORATUS, plant hairy; stems winged; leaflets ovate, mucronalate; stipulas semi-sagittate, lanceolate, and shorter than the petioles; peduncles 2-3-flowered, much longer than the leaves, calycine teeth broad, longer than the tube; legumes oblong-linear, compressed, hairy, seeds roundish. Native of Sicily. Flowers sweet scented.

Sweet Peas are a great ornament to flower borders in autumn. The seeds only require to be sown in drills or clumps in April. Gardeners who raise *sweet peas* for the London markets, sow them in the autumn in pots, and secure them from severe weather by placing them in hot-bed frames, by which means they can bring them early to market. They may be continued in flower the whole summer by repeated sowings in the spring. When sown in pots, they require to be frequently refreshed with water.

General History of the Dichlamydeous Plants, by George Don, F.L.S.

The Sweet pea has several varieties, greatly differing in colour: the common sort which is blue and dark purple, sometimes with a tinge of red, is a native of Sicily. The more delicate kind, white and blue, or white and deep rose colour, sometimes with a mixture of pale blue, is a native of Ceylon, and is called the painted lady.

The Tangier pea is a native of Barbary, its colours purple and red; it is an annual plant, and grows to the height of four or five feet, and blossoms in June and July, and dies in the autumn. Although the Sweet pea is now so common in this country, that we seldom see a garden without it, it is not more than a hundred years, since it was numbered among our rare and curious plants, and in the time of Parkinson and Evelyn, it was not known in our gardens. This pea blows in June, and continues in blossom till killed by the frost. It may be sown about half an inch deep, and it may be well to scatter the seeds pretty thickly; if they all grow, the weaker ones may be removed, and the stronger left. They may be sown in October, and kept in doors till spring, or may be sown and placed abroad in March or April. In cold weather, the earth should be just kept moist: in hot or dry summer weather, it must be watered every evening, and if necessary, in the morning also. When the plants are about three inches high, sticks should be placed to support them, three or four feet in length. This plant should not be kept within doors in warm weather or it will grow very tall and weakly and produce few flowers.

There is a variety of this pea entirely white, but the most beautiful is the red and white. But that I fear to confess so great a heresy, I would say this flower need not yield to the rose. Nothing can exceed the elegance of its form, nor can there be a more delicate contrast of colour. They are justly termed Papilionaceous, for they do indeed look like butterflies turned to flowers. It is sometimes difficult to believe that the little white butterflies which reel about in the sunshine, are not white violets or peas which have broken their bonds. It is equally difficult to believe that these flowers want anything but will to fly: and we almost expect to see them start from their stalks as we look at them.

Both these fancies are authorized by the poets.

"In their own bright Kathaian bowers,
Sparkle such rainbow butterflies,
That they might fancy the rich flowers,
That round them in the sun lay sighing,
Had been by magic all set flying."

Lalla Rookh.

These beautiful butterflies, Mr. Moore tells us, are called, in the Chinese language, Flying leaves. "Some of them" continues he, "have such shining colours, and are so variegated, that they may be called Flying flowers; and indeed they are always produced in the finest flower-gardens."

"Here are sweet peas on tip-toe for a flight,
With wings of gentle flush, o'er delicate white,
And taper fingers catching at all things,
To bind them all about with tiny rings."

Keat.

In his Calendar of Nature, Mr. Hunt speaks of sweet peas, as looking like butterflies turned to flowers. In short, it seems scarcely possible not to feel this. They seem only to linger to sip their own honey. *Arboretum Botanicum.*

Pisum Sativum, petioles terete, bearing three pairs of ovate, entire, glaucous leaflets, with undulated margins, usually opposite and mucronulate; stipulas ovate, somewhat cordate, crenated at the base; pedunncles two or many flowered; legumes rather fleshy. Natives of the south of Europe, and now cultivated in fields and gardens, throughout the world. Flowers white or red.

The *pea* has been cultivated in this country from time immemorial. It was not, however, very common in Elizabeth's time, when as Fuller informs us, peas were brought from Holland, and were "fit dainties for ladies, they came so far, and cost so dear." The use of the pea in cookery is familiar to every one. In one variety, called the *sugar pea*, the inner tough film of the pods is wanting, and such pods when young, are frequently boiled with the seeds or peas within them, and eaten in the manner of kidney-beans. This variety is comparatively new, having been introduced about the middle of the seventeenth century.

Estimate of sorts. The varieties, besides differing in the colour of the blossoms, height of stalks, and mode of growth, are found to have some material differences in hardiness to stand the winter, time of coming in, and flavour of the seeds. *The Charltons* are not only very early, but great bearers, and excellent peas for the table, and are therefore, equally well fitted for the early crop, and forward succession crops, and inferior to few even for the main summer crops.

The *frame pea* may, indeed, be raised without the assistance of heat for a forward crop, and if a genuine sort will fruit a few days sooner than the *Charltons*, but it grows low and bears scantily. The *Hotspur* is hardy and prolific, and makes returns nearly as quick as the *Charlton*, and about a fortnight before the *marrow-fat*. *Bishop's dwarf-pea* is an early kind and a great bearer. The sorts already specified, therefore, embrace the best for sowings made from the end of October till the middle of January, and for late crops raised between the middle of June and the beginning of August. The fine flavour of the marrow-fat is well known. A few dwarf *marrow-fats* may be sown in December and January, as mild weather may occur; but the time for sowing full crops of the larger kinds of *peas* is from the beginning of February till the end of April. The *egg*, the *maratto*, the *prussian-blue*, and the *rouncivals*, the *large-sugar*, and the *crown*, are all very fine eating peas in a young growth, and like the *marrow-fat* may be sown freely according to the demand, from the third week in February to the close of April, and in smaller crops, until the middle of June. For late crops, in addition to the early sorts already mentioned, the *dwarf* sugar, Leadman's dwarf, Bishop's dwarf, are small delicious peas, great bearers, and in high request at genteel tables, but as the fruit of *Leadman's* as well as *Bishop's dwarf* is long of coming in, it is not advisable to sow it after the third week in June; rather sow it in March, April, and May, and then it will be later than the *Charltons* raised five weeks afterwards. The *Charltons* and *Hotspurs* may be sown in May, for late full crops, in June for a smaller supply, and in July along with the *frame* for the last returns.

Soil and situation. The soil should be moderately rich, and deeper and stronger for the lofty growers. Peas are not assisted, but hurt by unreduced dung, recently turned in. A fresh sandy loam or road stuff; and a little decomposed vegetable matter, is the best manure. The soil for early crops should be very dry, and rendered so where the ground is moist, by mixing sand with the earth of the drills. For early crops, put in from October till the end of January, let the situation be sheltered and the aspect sunny. Before the end of December, every one or two rows should stand close under a south or south eastern fence. In

January, several parallel rows may be extended under a good aspect, further from the fence. After January till the end of May, sow in an open situation. For the late crops, return again to a sheltered sunny border.

Subsequent culture. As the plants rise from half an inch high to two or three inches, begin to draw earth to the stems, doing this when the ground is in a dry state, and earthing gradually higher as the stems ascend. At the same time with the hoe loosen the ground between the young plants, and cut down rising weeds. Early crops should be protected during hard frosts by dry straw or other light litter, laid upon sticks or brushwood, but remove this covering as soon as the weather turns mild. If in April, May, and the course of summer, continued dry weather occurs, watering will be necessary, especially to plants in blossom and swelling the fruit, and this trouble will be repaid in the produce. Rows partly cut off may be made up by transplanting. This is best done in March. In dry weather, water, and in hot days, shade, until the plants strike. All *peas* fruit better for sticking, and continue longer productive, especially the larger sorts. Stick the plants, when from six to twelve inches high, as soon as they begin to vine. Provide branching sticks, of such a height as the sort will require; for the *frame* and *Leadman's dwarf* three feet high, for the *marrow-fat* and larger kinds, six or eight feet. Place a row of sticks to each line of the plants on the sunny side, that the attraction of the sun may incline the plants towards the sticks. Place about half the number on the opposite side, and let both rows stand rather wider at top than at the ground. Some gardeners stop the leading shoots of the most early crop when in blossom, a devise which accelerates the setting and maturing of the fruit.—*Abercrombie.*

Field-peas. The *pea* is the most esteemed legume in field cultivation, both for its seed and haulm, and was cultivated by the Greeks and Romans, and in this country from time immemorial, though its culture appears to have diminished since the more general introduction of herbage plants and roots; and, excepting near large towns for gathering green, and in a few places for boiling, the *pea* has given way to the bean, or to a mixture of *peas* and beans. There are various inducements, however, to the cultivation of *peas* in dry warm soils near large towns. When the crop is good and gathered green, few pay better. The ground after the *peas* have been removed is readily prepared for turnips, which also pay well as a retail crop near towns, and the haulm is good fodder. *The varieties of peas* cultivated in fields are numerous, but they may be divided into two classes, those grown for the ripened seed, and those grown for gathering in a green state. The culture of the latter is chiefly near large towns, and may be considered as in part belonging to horticulture rather than agriculture.

The use of peas for soups, puddings, and other culinary purposes is well known. In some places porridge, brose, and bread are made of pea-flour, and reckoned very wholesome and substantial. In Stirlingshire, it is customary to give pease or bean biscuit to horses while in the yoke as a refreshment. The portion of *peas* that is not consumed as human food is mostly appropriated to the purposes of fattening hogs and other sorts of domestic animals, and in particular instances they are given to labouring horses in place of beans, but care should be taken when used in this way that they be sufficiently dry, as they are otherwise apt to occasion bowel complaints in those animals. For feeding swine the pea is much better adapted than the bean, it having been demonstrated by experience that hogs fatten more kindly when fed with this grain than on beans; and what is not easy to be accounted for, the flesh of swine which have been fed on *peas*, it is said, will swell on boiling, and be well tasted, whilst the flesh of the bean fed hog will shrink on boiling, the fat will boil out, and the meat be less delicate in taste. *Peas straw cut green* and dried is reckoned as nourishing as hay, and is considered as excellent for sheep.

The diseases of peas are few, and chiefly the worm in the pod, and the fly on the leaves and flowers. They are also liable to be mildewed or blighted. None of these evils, however, are very common, and there is no known method of preventing them but by judicious culture.

In the sowing of any particular sorts of seed, they should be carefully looked over while in flower, in order to draw out all such plants as are not of the right sort, which if left to mix, will degenerate the kind. As many rows as may be thought sufficient to furnish the desired quantity of seed should be marked out, and left till their pods turn brown and begin to split, when they should immediately be gathered up with

the haulm, they may then be either stacked or threshed out as soon as they are dry; but care should be taken not to let them remain too long abroad after they are ripe, as wet would rot them, and heat after a shower of rain making their pods burst in such a manner, that the greater part of their seeds would be lost.

General History of the Dichlamydeous Plants, by George Don.

Young Green Peas well dressed, are one of the most delicious delicacies of the vegetable kingdom. They must be young; it is equally indispensable that they be *fresh gathered, and cooked as soon as they are shelled,* for they soon lose both their colour and sweetness.

If you wish to feast upon PEAS IN PERFECTION, you must have them gathered the same day they are dressed and put on to boil within half an hour after they are shelled. Pass them through a riddle, *i.e.* a coarse sieve, which is made for the purpose of separating them. This precaution is necessary, for large and small peas cannot be boiled together, as the former will take more time than the latter.

For a peck of peas, set on a saucepan with a gallon of water in it; when it boils, put in your peas with a table spoonful of salt, skim it well, keep them boiling quick from twenty to thirty minutes, according to their age and size: the best way to judge of their being done enough, and indeed the only way to make sure of cooking them too, and not beyond the point of perfection, or, as Pea-eaters say, of "*boiling them to a bubble,*" is to take them out with a spoon and taste them.

When they are enough, drain them on a hair sieve. If you like them buttered, put them into a pie dish, divide some butter into small bits, and lay them on the peas; put another dish over them, and turn them over and over, this will melt the butter through them, but as all people do not like buttered peas, you had better send them to table plain, as they come out of the saucepan, with melted butter in a sauce tureen. It is usual to boil some mint with the peas, but if you wish to garnish the peas with mint, boil a few sprigs in a saucepan by themselves.

N. B. A peck of young peas will not yield more than enough for a couple of hearty pea-eaters; when the pods are full, it may serve for three.

Plain Pease Soup.—To a quart of split peas, and two heads of celery, (and most cooks would put a large onion,) put three quarts of broth or soft water; let them simmer gently on a trivet over a slow fire for three hours, (stirring up every quarter of an hour to prevent the peas burning at the bottom of the soup kettle, if the water boils away, and the soup gets too thick, add some boiling water to it;) when they are well softened, work them through a coarse sieve, and then through a fine sieve or a tammis, wash out your stew-pan, and then return your soup into it, and give it a boil up; take off any scum that comes up, and it is ready. Observe this is an excellent family soup produced with very little trouble or expense;—that is,

	s.	*d.*
Quart of Peas	0	8
Two Heads of Celery . .	0	2
Pepper and Salt	0	1
Dried Mint	0	1
	1	0

Kitcheher (No. 221.)

Amygdalus Persica.

AMYGDALUS PERSICA.—THE PEACH.

Class XII. ICOSANDRIA.—Order I. MONOGYNIA.

Natural Order, AMYGDALEÆ.—THE ALMOND TRIBE.

The peach tree in its natural state is under the middle-size, with spreading branches, lanceolate, glabrous, serrated leaves. The flowers are sessile, with reddish calyxes, and pale or dark-red corollas: the fruit roundish, generally pointed, with a longitudinal grove; the pulp or sarcocarp large, fleshy, and succulent, white or yellowish, sometimes reddish, abounding in a grateful sweet acid juice; the stone hard, and irregularly furrowed; and the kernel bitter. The tree of quick growth, and not of long duration, blossoms in April, and ripens its fruit in August and September. Dr. Sickler considers Persia as the original country of the peach, which in Media is deemed unwholesome, but when planted in Egypt becomes pulpy, delicious, and salubrious. The peach also, according to Columella, when first brought from Persia into the Roman empire possessed deleterious qualities, which T. A. Knight concludes to have arisen from these peaches being only swollen almonds (the *tuberes* of Pliny,) or imperfect peaches, and which are known to contain the prussic acid, which operates unfavourably on many constitutions. The tree has been cultivated time immemorial in most parts of Asia; when it was introduced into Greece is uncertain; the Romans seem to have brought it direct from Persia during the reign of the Emperor Claudius. It is first mentioned by Columella, and afterwards described by Pliny. The best peaches in Europe are at present grown in Italy on standards, and next may be cited those of Montreuil near Paris, trained on lime-white walls. (Mozard sur l'Education du Pêcher, &c. 1014.) In England there are but few sorts of peaches that come to tolerable perfection in the open air in ordinary seasons. The best adapted for this purpose are the *free-stones*, but all the sorts ripen well by the aid of hot-walls or glass, and may be forced so as to ripen in May and June. The tree is generally an abundant bearer; one of the *noblesse* kind is at Yokefield in Suffolk, which covers about 600 square feet of trellis under a glass case without flues, and ripens annually from 60 to 70 dozen of peaches. (Hort. trans. 3. p. 17.)

Use. The *peach* is a dessert fruit of the first order, and makes a delicious preserve. In Maryland and Virginia a brandy is made from the fruit. "The manufacture of this liquor, and the feeding of pigs, being (as Braddick observes, Hort. trans. 2. p. 205,) the principal uses to which the *peach* is applied in those countries." The leaves steeped in gin or whisky communicate a flavor resembling that of noyeau.

Criterion of a good peach. A good peach, Miller observes, possesses these qualities; the flesh is firm, the skin is thin, of a deep or bright-red colour next the sun, and yellowish green next the wall; the pulp is of a yellowish colour, full of high flavoured juice, the fleshy part thick, and the stone small.

Varieties. Linnæus divides his *Amygdalus Persica* into two varieties; that with downy fruit, or the *peach*, and that with smooth fruit, or the *nectarine*, but in the present work the *peach* and *nectarine* have been established into a genus called *Persica*, and the *peach* and *nectarine* made distinct species. There are, however, various instances on record (Hort. trans. 1. p. 103,) of both fruits growing on the same tree, and even on the same branch; and one case has occurred of a single fruit partaking of the nature of both. The French consider them as one fruit, arranging them in four divisions, the *pêches* or *free stone peaches*, the flesh of whose fruit separates readily from the stone and the skin; the *pêches lisses* or *free-stone nectarines;* the *pavies* or *cling-stone peaches*, whose flesh is firm, and adheres both to the stone and the skin; and the *Brugnons* or *cling-stone nectarines*. Knight (Hort. trans. 3. p. 1.), Robertson (Hort. trans. 3. p. 382.), and many other horticulturists, consider the *peach* and almond as one species. We have, however, in this work followed the established nomenclature, and treated them as distinct fruits. There are many fine varieties of the *peach*. Tusser, in 1573, mentions peaches white and red; Parkinson, in 1629, enumerates 21 sorts; and Miller, in 1750, 31 varieties. In the garden of Luxembourg at Paris are 70 varieties, and above double that number of names are to be found in the catalogues of our nurseries. Several attempts have been made to class the varieties of *peaches* and *nectarines* by the leaf and flower, as well as the fruit; the first is by M. Poiteau in the Bon Jardinier; the next by Count Lelieur in his Pomone Française; the next by John Robertson, Nurseryman of Kilkenny, whose arrangement is founded on the glands of the leaves; and the fourth by George Lindley (Hort. trans. vol. 5.), also founded on the glands of the leaves; but none of these arrangements have been found sufficiently perfect for the purpose of this work.

All the varieties of *peaches* and *nectarines*, Abercrombie remarks, "are extremely well suited for forcing in large pots. Small plants intended to come in before or after those in the borders may be excited in the

first stage in a distinct house, so as the temperature of that in which they are brought to finish fruiting be suited to their progress. The pots or tubs should be such as not to contain less than a cubic foot of earth, the soil should be lighter and richer than that recommended for the borders, and liquid manure should be plentifully supplied to make up in some degree for the confinement of the roots. They are best forced in a peach-house, but succeed in a vinery or succession stove; best of all, however, in a pit or Dutch frame, where the temperature can be regulated at pleasure, and where they are near the glass. Great care must be taken to supply them regularly with water, for which purpose some place saucers under the pots, others cover their surface with moss, or what is better, fresh cow or rotten horse dung. Casing the pots with ropes made of moss is also a very good method, as it not only preserves an uniform degree of moisture, but also of temperature. Of course the moss must be kept watered. *Peach* trees in pots are sometimes trained to small fan-trellises attached to the pot, but in general they are pruned as dwarf standards, in which form they bear rather better than when trained. When the fruit is nearly ripe, the pots should be removed from the hot-house, or vine-house, to a cooler and more airy situation, or if in the pits the sashes may be taken off a part of every fine day. In other respects the treatment of *peach* trees in pots is similar to that of the trees in the borders."

Whether or not the blushing peach
Was Eden's once forbidden fare,
I cannot tell ————

says an agreeable correspondent; but we certainly think it has fairer claims to such an eminence than the huge cousin of the orange family, which takes the title of forbidden fruit in our shops.

There is great beauty, says Leigh Hunt, as well as other agreeableness, in a well-disposed fruiterer's window. Here are the round piled-up oranges, deepening almost into red, and heavy with juice; the apple with its brown red cheek, as if it had slept in the sun; the pear, swelling downwards, and provocative of a huge bite in the side; thronging grapes, like so many tight little bags of wine; the peach, whose handsome leathern coat strips off so finely; the pearly or ruby-like currants, heaped in light long baskets; the red little mouthfuls of strawberries, ditto; the larger purple ones of plums: cherries, whose old comparison with lips is better than any thing new; mulberries, dark and rich with juice, fit to grow over what Homer calls the deep black-watered fountains; the swelling pomp of melons; the rough inexorable-looking cocoa-nut, milky at heart; the elaborate elegance of walnuts; the quaint cashoo-nut; almonds, figs, raisins, tamarinds, green leaves,—in short,

Whatever Earth, all-bearing mother, yields
In India East or West, or middle shore
In Pontus or the Punick coast, or where
Alcinous reigned, fruit of all kinds, in coat
Rough, or smooth rind, or bearded husk, or shell.

MILTON.

There is something of more refined service in waiting upon a lady in a fruit-shop, than in a pastry-cook's. The eating of tarts, as Sir Walter Scott handsomely saith in his Life of Dryden (who used to enjoy them, it seems, in company with "Madam Reeves") is "no inelegant pleasure;" but there is something still more graceful and suitable in the choosing of the natural fruit, with its rosy lips and red cheeks. A white hand looks better on a basket of plums, than in the doubtful touching of syrupy and sophisticated pastry. There is less of the kitchen about the fair visitor. She is more Pomona-like, native, and to the purpose. We help her, as we would a local deity.

Here be grapes whose lusty blood
Is the learned poet's good;
Sweeter yet did never crown
The head of Bacchus;—Nuts more brown
Than the squirrels teeth that crack them;
Deign, O fairest fair, to take them.
For these black ey'd Driope
Hath often times commanded me,
With my clasped knee to clime;
See how well the lusty time
Hath deckt their rising cheeks in red,
Such as on your lips is spread.

Here be berries for a Queen,
Some be red, some be green,
These are of that luscious meat,
The great God Pan himself doth eat.
All these, and what the woods can yield,
The hanging mountain or the field,
I freely offer, and ere long
Will bring you more, more sweet and strong,
Till when humbly leave I take,
Lest the great Pan do awake,
That sleeping lies in a deep glade,
Under a broad beech's shade.

Fletcher's Faithful Shepherdess.

How the poets double every delight for us, with their imagination and their music!

The peach blossom signifies, *I am your captive!*

Pyrus communis

PYRUS COMMUNIS.—THE PEAR TREE.

Class XII. ICOSANDRIA.——Order II. PENTAGYNIA.

Natural Order, POMACEÆ.—THE APPLE TRIBE.

Calyx with an urceolate tube, and a 5-lobed limb. Petals roundish. Styles usually 5, rarely 2 or 3. Pome closed, 5-celled; putamen cartilaginous. Seeds 2 in each cell; testa cartilaginous.—Trees or shrubs, with simple or pinnate leaves, and terminal, many-flowered cymes. Bracteas subulate, deciduous.

The *pear* tree is called *poirier* in French, *Birnbaum* in Germany, and *pero* in Italian. In its wild state, the *pear* is a thorny tree, with upright branches, tending to a pyramidal form, in which it differs materially from the apple tree. The twigs or spray hang down; the flowers in terminal villous corymbs, produced from wood of the preceding year, or from buds gradually formed on that of several years' growth, on the extremities of very short protruding shoots, technically spurs. It is found in a wild state in Britain, and abundantly in France and Germany, as well as other parts of Europe, not excepting Russia, as far as latitude 51°. It grows in almost any soil. The cultivated tree differs from the apple, not only in having a tendency to the pyramidal form, but also in being more apt to send out tap roots, in being as a seeding plant much longer in coming into bearing, and when on its own root, or grafted on a wild *pear* stock, of being much longer lived. In a dry soil it will exist for centuries, and still keep its health, productiveness, and vigour. "The period at which the *Teinton squash pear* first sprang from seed," Mr. Knight observes, "probably now cannot at all be ascertained; but I suspect from its present diseased and worn-out state, that it existed at least as early as the beginning of the sixteenth century; for another kind, the *barland*, which was much cultivated in the early part of the seventeenth century, still retains a large share of health and vigour; and the identical trees which supplied the inhabitants of Herefordshire in the 17th century with liquor, are likely to do the same good to those of the 19th." The remarks on the history of the apple will apply, almost without exception, to the *pear*. The Romans in Pliny's time possessed 32 sorts, and the fruit is still more valued than the apple, both in Italy and France.

History. The Pear is mentioned by the earliest writers, as common in Syria, Egypt, and Greece; from which latter country it appears to have been brought into Italy. Theophrastus speaks of the productiveness of old pear trees; and Virgil mentions some Pears which he received from Cato. Pliny, in his 15th book, describes the varieties in cultivation in his time as being exceedingly numerous; and mentions a number which were named after the countries from which they were received. Of all pears, he says, the Crustumine is the most delicate and agreeable. The Falernian pear was esteemed for its juice; and the Tiberian pear, because it was preferred by the Emperor Tiberius. There were "proud pears," which were so called because they ripened early, and would not keep, and "winter pears" pears for baking, &c. as at the present day. "All Pears whatsoever" Pliny observes, "are but a heavy meat, unless they are well boiled or baked." When the cultivated pear was introduced into Britain is uncertain; but there can be little doubt that it was brought here by the Romans; and it is by no means improbable that all our wild pears have originated in the seeds of these cultivated sorts, accidentally disseminated by birds. The pear is mentioned by Chaucer; and, in the time of Henry VIII. it appears that the warden (so called from its property of keeping) was in cultivation; for, among certain charges in an old account book in the Exchequer, 3s. 4d., is mentioned for "medlars and warders," and 12d. for "pears," probably some commoner sort. In Gerard's time, the Katherine pear (a small red early fruit, still occasionally sent to market, No. 172, Hort. Soc. Cat. and called by Gerard, Pyrus superba, sive Katherina) was considered the best: but he enumerates seven sorts, all of which, he says, and many more sorts of "*tame* peares," and those "most rare and good, are growing in the ground of Master Richard Pointer, a most cunning and curious graffer and planter of all manner of rare fruits, dwelling in a small village neere London, called Twickenham; and also in the ground of an excellent graffer and painfull planter, Mr. Henry Banbury, of Touthill Street, neere Westminster; and likewise in the

ground of a diligent and most affectionate lover of plants, Mr. Warner, neere Horseydowne, by London and in divers other grounds about London."

PROPERTIES AND USES. The wood of the wild pear is heavy, strong, compact, of a fine grain, and slightly tinged with red. It weighs, green, 79lbs. 5oz. per cubic foot; and, when dry, from 49lb. to 53lb. This wood, in common with that of all the Rosaceæ, is liable to have its natural colour changed by steeping it in water; which ought, therefore, to be avoided when it is intended for particular purposes. It is readily stained black, and then so closely resembles ebony as to be scarcely distinguishable from it. According to Du Hamel, it is, next to the true service (P. Sorbus domestica,) the best wood that can be employed by wood engravers; which use Gerard also seems to hint at when he says, it "likewise serveth to be cut into many kinds of moulds; not only such prints as these figures are made of, but also many sorts of pretty toies, for coifes, brest-plates, and such like, used among our English gentlewomen." (p. 1459.) For the wood engraver, however, it is far inferior to the box; though it is allowed to be very hard and homogeneous and yet easy to cut, and when perfectly dry, not liable either to crack or to warp. For coarse engravings on wood, such as large plans, &c., we have no doubt that it would succeed perfectly.—*Loudon's Arbor. and Fruticetum Britann.*

As a dessert fruit, the *pear* is much esteemed, and generally preferred to the apple. It is also used for baking, compôts, marmalade, &c. Dried in an oven, the fruit will keep upwards of a year, either with or without syrup. This mode of preparing the *pear* is about as common in France as the making of apple pies in this country. Bosc (Nouveau Cours d'Agric. in loco,) describes two methods of drying *pears* for preservation, and adds that he has tried them after 3 years' keeping, and found them still very good. Perry, the *poiré* of the French, is made from the fermented juice, in the manner of cider, and the best sorts are said by Withering to be little inferior to wine. The wood of the *pear* tree is light, smooth, and compact, and is used by turners and to make joiners' tools, and picture frames to be dyed black. The leaves will will produce a yellow dye, and may be used to give a green to blue cloths.

Criterion of a good pear.—Dessert *pears* are characterised by a sugary aromatic juice, with the pulp soft and sub-liquid, or melting, as in the *beurrés* or *butter pears*. Kitchen *pears* should be large of size, with the flesh firm, neither breaking nor melting, and rather austere than sweet, as the *wardens*. Perry *pears* may be either large or small, but the more austere the taste the better will be the liquor. Excellent perry was made from the wild *pear*.

When discussing the differences of trees, Virgil mentions three kinds of pears:—

> ————nec surculus idem
> Crustumiis, Syriisque pyris, gravibusque volemis.
> *Georg. Lib.* ii. 87.

They are reduced to two in Dryden's translation:—

> Unlike are bergamots and pounder-pears.

According to the Delphin commentator, however, the *volema* are not pound-pears, but *bon Chrétiens*; their Latin name is derived from their being large enough to fill the hollow of the hand, *(vola.)*

Pentas carnea!

PENTAS CARNEA.—FLESH-COLOURED PENTAS.

Class V. PENTANDRIA.——Order I. MONOGYNIA.

Natural Order, STELLATÆ.—THE MADDER TRIBE.

The beautiful half-shrubby plant here depicted has been lately introduced to this country from the Continent, and grown in several of the gardens and nurseries about London under the name of *Sipanea carnea*. It was first received at the Botanic Gardens of Kew, from Mr. Mackoy of Liege, and has since been obtained by Messrs. Rollisson and others, from the Jardin des Plantes at Paris. No memoranda were furnished with these plants respecting the native country of the species, and we are, consequently, unable to state with certainty what part of the world claims it as its production. Another species of the genus, *P. parviflora*, having been discovered by Dr. Vogel, in the late Niger expedition, growing in the western part of Tropical Africa, near Acera, and other plants nearly allied being found in the same neighbourhood, Sir William Hooker, in the Botanical Magazine, conjectures this to belong to the same locality.

As an ornamental plant for the stove, or possibly for a warm greenhouse, this will be hailed as an acquisition of some importance. It has an excellent robust habit, and produces a number of partially-spreading branches, forming a handsome bushy plant, clothed with an abundance of large, broad foliage, concealing the stems to the very base with its lively verdure. These branches usually bear flowers as they are formed, even when the plant is in an exceedingly dwarf state, without appearing to have any injurious effect on the continuing growth of the specimen. The blossoms are collected into corymbose clusters, and stand erect, displaying their lovely soft flesh-coloured hue to the utmost advantage. When the flowers are first developed they are very pale, but gradually acquire colour with exposure. If the plant is kept growing in a favourable situation, it will continue to blossom, with the formation of new branches, for the greater part of the year; and such is the rapidity of its growth, that it will form a large bush in the course of a single season.

Like most soft-wooded plants of quick growth, it requires a rather large pot, and a strong soil, rich in nourishing properties. And it will probably be beneficial to use an occasional application of manure water, to increase its vigour, especially where large specimens are desirable. In the summer months there is little doubt that it will be found to succeed satisfactorily in a close greenhouse, although in winter and spring a little more warmth is necessary.

It is easily propagated by taking off the extremities of the young shoots as soon as they have acquired a little firmness; and, inserting them in a pot of sand, covered with a bell glass, and placed in heat, they will take root in ten days or a fortnight, and should be immediately potted into separate pots and encouraged to grow.

The generic name, *Pentas*, has been applied by Mr. Bentham, from the division of the corolla being quinary instead of four-cleft, as in other allied genera. Although general, this is not constant, as flowers on the same head are four and five-parted. Three or four plants, which have hitherto been arranged under other genera, are suspected by Mr. Bentham to belong rightly to this.

——Then came cold February, sitting
In an old wagon, for he could not ride,
Drawne of two fishes, for the season fitting,
Which through the flood before did softly slide
And swim away; yet had he by his side
His plough and harness fit to till the ground,
And tooles to prune the trees before the pride
Of hasting prime did make them burgeon round.—*Spenser.*

This month has Pisces or the fishes for its zodiacal sign. Numa, who was chosen by the Roman people to succeed Romulus as their king, and became their legislator, placed it the second in the year, as it remains with us, and dedicated it to Neptune, the lord of water. Its name is from the *Februa*, or Feralia, sacrifices offered to the manes of the gods at this season; Ovid in his *Fasti* attests the derivation:—

In ancient times, purgations had the name
Of *Februa*, various customs prove the same;
The pontiffs from the *rex* and *flamen* crave
A lock of wool; in former days they gave
To wool the name of Februa.
A pliant branch cut from a lofty pine,
Which round the temples of the priests they twine,
Is Februa called; which if the priest demand,
A branch of pine is put into his hand;
In short, with whatsoe'er our hearts we hold
Are purified, was Februa termed of old;
Lustrations are from hence, from hence the name
Of this our month of February came;
In which the priests of Pan processions made;
In which the tombs were also purified
Of such as had no dirges when they died;
For our religious fathers did maintain,
Purgations expiated every stain
Of guilt and sin; from Greece the custom came,
But here adopted by another name;
The Grecians held that pure lustrations could
Efface an impious deed, or guilt of blood.
Weak men! to think that water can make clean
A bloody crime, or any sinful stain.——*Massey's Ovid.*

THE SEASON.

Sunk in the vale, whose concave depth receives
The waters draining from these shelvy banks
When the shower beats, yon pool with pallid gleam
Betrays its icy covering. From the glade
Issuing in pensive file, and moving slow,
The cattle, all unwitting of the change,
To quench their customary thirst advance.
With wondering stare and fruitless search they trace
The solid margin: now bend low the head
In act to drink; now with fastidious nose
Snuffing the marble floor, and breathing loud,
From the cold touch withdraw. Awhile they stand
In disappointment mute; with ponderous feet
Then bruise the surface: to each stroke the woods
Reply; forth gushes the imprisoned wave.

Our Saxon ancestors, according to Verstegan, "called February *Sprout kele*, by kele meaning the kele-wurt, which we now call the cole-wurt, the greatest *pot-wurt* in time long past that our ancestors used, and the broth made therewith was thereof also called kele; for before we borrowed from the French the name of potage, and the name of herbe, the one in our owne language was called *kele*, and the other *wurt;* and as this kele-wurt, or potage-herbe, was the chiefe winter-wurt for the sustenance of the husbandman, so was it the first herbe that in this moneth began to yeeld out wholesome yong sprouts, and consequently gave thereunto the name of *Sprout kele.*" The "kele" here mentioned, is the well known kale of the cabbage tribe. But the Saxons likewise called this month "Solmonath," which Dr. Frank Sayers in his "Disquisitions" says, is explained by Bede "mensis placentarum," and rendered by Spelman in an unedited manuscript "*pan-cake* month," because in the course of it, cakes were offered by the pagan Saxons to the sun; and "Sol" or "soul," signified "food," or "cakes."

In "The Months," a popular writer remarks that "if February were not the precursor of spring, it would be the least pleasant season of the year, November not excepted. The thaws now take place; and a clammy mixture of moisture and cold succeeds, which is the most disagreeable of wintry sensations." Yet so variable is our climate, that the February of 1825 broke in upon the inhabitants of the metropolis with a day or two of piercing cold, and realized a delightful description of January sparkled from the same pen. "What can be more delicately beautiful than the spectacle which sometimes salutes the eye at the breakfast-room window, occasioned by the hoar-frost dew? If a jeweller had come to dress every plant over night, to surprise an Eastern sultan, he could not produce any thing like the 'silvery plumage.' An ordinary bed of greens, to those who are not at the mercy of their own vulgar associations, will sometimes look like crisp and corrugated emerald, powdered with diamonds."

In February, says William Howitt, "The houses, and all objects whatever, have a dirty and disconsolate aspect; and clouds of dim and smoky haze hover over the whole dispiriting scene. In the country the prospect is not much better: the roads are full of mire. In the woods and copses you hear a continual dripping and pattering of wet: while the fieldfares, instead of flying across the country with a pleasant chattering, sit solitarily amongst the comfortless trees, uttering their plaintive cry of "cock-shute, cock-shute;" and the very rooks peer about after worms in the fields with a drooping air. Instead of the enchantments of hoar-frost, you have naked hedges, sallow and decaying weeds beneath them, brown and wet pastures and sheets of ice, but recently affording so much fine exercise to skaters and sliders, half submersed in water, full of great cracks, scattered with straws and dirty patches, and stones half liberated by the thaw; —such are the miserable features of the time.

Let us felicitate ourselves that such joyless period is seldom of long duration. The winds of March speedily come piping their jovial strains, clearing the face of the blessed heavens from their sullen veil of clouds, and sweeping away the superabundant moisture from earth and air. Oh; blithe and animating is the breath of March! It is like a cool but spirit-stirring draught of some ancient vintage; elating but not enervating the heart; deadening the memory of past evil, and expanding it to the delicious hope of future delights. So precious a boon, however, is not exclusively permitted to March; February is allowed to be a liberal partaker ere its close, and we have known the winds lift up their voices this month with all their triumphant and sonorous energy. Nothing can perhaps illustrate so livingly our idea of a spirit, as a mighty wind—present in its amazing power and sublimity, yet seen only in its effects. We are whirled along with its careering torrent with irresistible power; we are driven before it, as Miss Mitford says, as by a steam-engine. How it comes rushing and roaring over the house, like the billows of a mighty ocean! Then for the banging of doors, the screaming and creaking of signs, the clatter of falling shutters in the street! Then for the crash of chimneys, the down-toppling of crazy gables, the showering of tiles upon the pavement, as if the bomb-shells of a besieging army were demolishing the roofs, and rendering it even death to walk the streets! Then for a scene of awful grandeur upon the glorious ocean! That which, but an hour before, was calm and sun-bright, a variety of vessels lying at anchor, or sailing to and fro in serene beauty, then is a scene of sublime and chaotic uproar!—the waves rolling and foaming, and dashing their spray over rocks, pier-heads, houses, and even over the loftiest towers and churches too, as I have seen it, to an amazing extent, till the water ran down the walls like rain, and the windows, at a great distance from the beach, were covered with a salt incrustation—the vessels meanwhile labouring amidst the riotous billows as for life, and tugging at their cables, as if mad for their escape.

Piper nigrum?

PIPER NIGRUM.——BLACK PEPPER.

Class II. DIANDRIA.—Order III. TRIGYNIA.

Natural Order, PIPERACEÆ.—THE PEPPER TRIBE.

Fig. (*a*) represents the calyx or corolla; (*b*) a flower cut open; (*c*) a section to shew the germen; (*d*) the fruit; (*e*) the same decorticated.

Piper Nigrum,[a] the *tiro-bo* of the Cochin-Chinese, the *melagocodi* of the Hortus Malabaricus, is a perennial plant, a native of the East Indies; and is much cultivated in Malabar, Java, Borneo, Sumatra, and the Philippine islands, whence the whole of Europe is supplied. It grows in the greatest abundance in the province of Malabar, and constitutes one of their principal articles of export. One thousand plants yield from 500 to 1,000 pounds of pepper.

It is a climbing plant, twining itself round any neighbouring support, and rising to the height of twelve or fifteen feet. The stems are round, smooth, jointed, woody, slender, branched, scandent, and if suffered to run along the ground, rooting at the joints. The leaves are broad-ovate, entire, pointed, coriaceous, smooth, shining, 7-nerved, of a deep green colour, and stand at the joints of the branches upon strong sheath-like footstalks. The flowers are small, sessile, whitish, without calyx or corolla, and produced in long, slender, terminal spikes. The anthers are roundish, and placed opposite, at the base of the germen; the germen is ovate, and crowned with three rough stigmas. The fruit is a globular berry, green when young, but turning to a bright red when ripe and in perfection.

The Black Pepper, or pepper vine, as it is commonly called, is readily propagated by cuttings or suckers. If suffered to trail along the ground the plant would not bear; prop-trees being necessary for encouraging it to throw out its prolific shoots. These prop-trees, called *chinkareens*, commonly planted for this purpose in India, according to Dr. Ainslie, are the betel nut palm, (Areca *catechu*,) the moochié wood tree, (Erythrina *indica*;) the mango tree, (Mangifera *indica*;) the jack tree (Artocarpus *integrifolia*;) and the Hyperantha *moringa*; but it has been remarked, that the vines which cling round the two last, thrive the best. The trees commonly preferred in the islands of the Eastern Archipelago, are the Erythrina *coralodendron*, and mánghúdú (Morinda *citrifolia*.)

The plant begins to bear about the third year, and is esteemed in its prime in the seventh, which state it maintains three or four years; it then gradually declines for about the same period. The vines generally yield two crops annually, the first in December, the second in July. As soon as any of the berries redden, the bunch is reckoned fit for gathering, the remainder being generally full grown, although green. When gathered, they are spread on mats in the sun; in this situation they become black and shrivelled, and as the pepper dries, it is rubbed occasionally between the hands to separate the grains from the stalks.

According to Mr. Milburn, the pepper countries extend from about the longitude of 96° to that of 115° E., beyond which none is to be found; and they reach from 5° lat. to about 12° N., where it again ceases. Within these limits are Sumatra, Borneo, the Malay peninsula, and certain countries lying on the east coast of the gulf of Siam.

The pepper of Malabar is esteemed the best; next, that of the east coast of the Gulf of Siam; then follow those of Calantan; Borneo; the coast of Sumatra; and last of all, the pepper of Rhio; which, through the avidity of the cultivators and dealers, is plucked before it is ripe, and hence it is hollow and ill-coloured.

There are two sorts of pepper in commerce, black and white. The best black pepper is that which is well garbled and clean, having the stalks, bad grains, and other impurities taken out, and is denominated heavy pepper; it is the sort usually brought to Europe. This pepper when dry assumes a dark appearance, and is called *black* pepper; divested of its external coat, by steeping the grains in water, and afterwards drying them in the sun, it is termed *white* pepper.

Qualities and Chemical Properties.—Black pepper is aromatic, hot, and pungent. It yields its virtues to ether and alcohol, and partly to water. The infusion reddens vegetable blues. It is of a brown colour, which it owes to the outer coat. To analysis by M. Pelletier, black pepper yielded, 1st,

[a] For the following account we are chiefly indebted to Churchill's Medical Botany; but we have taken some particulars from Mr. Pereira's lectures in the Medical Gazette.

piperin; 2nd, green concrete very acrid oil; 3rd, thick volatile oil; 4th, coloured gummy matter; 5th, extractive, analogous to that yielded by some leguminosæ: 6th, malic and uric acids; 7th, bassorine; 8th, various earthy and alkaline salts; 9th, woody fibre.[a]

Piperin, a new principle, was discovered some years since, in black pepper by M. Œrstaedt, who believed it to be a vegetable alkali. This does not, however, appear to be the case; but it bears considerable analogy to the resins, especially to that of cubebs, which M. Vauquelin compares with the balsam of copaiba. The following is M. Pelletier's method of obtaining it. After having digested the pepper repeatedly in alcohol, and evaporated the solutions, a fatty or resinous matter is obtained; this must be subjected to the action of boiling water, which must be repeated until it passes off colourless. Then by dissolving this fatty matter (purified by washing in alcohol) by the aid of heat, and leaving the solution to itself for some days, a multitude of crystals is obtained, which may be purified by solution in alcohol and ether, and by repeated crystallizations. The alcoholic mother-waters, left to themselves, will afford fresh crystals, which are *piperin*, under the form of prisms, with four faces; two of which, parallel to each other, are evidently broader. These crystals are colourless and transparent, inodorous, and almost insipid. They are totally insoluble in cold water; boiling water dissolves a small portion of them, which is precipitated on cooling. They are very soluble in alcohol, less so in ether. The peculiar properties of pepper appear to depend on an acrid volatile oil, which is associated with the piperin.

Medical Properties and Uses.—The principal use of pepper is condimentary: it is employed partly for its pungent flavour, partly to stimulate the stomach and promote the digestive process, especially when substances not readily assimilable have been taken as a medicine. Pepper is employed both for its local and constitutional effects; thus, mixed with lard, we employ it in the form of ointment against tinea capitis. In relaxed uvula, paralysis of the tongue, and in other effects of the mouth and throat requiring a powerful acrid, pepper may be employed as a masticatory. It may be mixed with mustard to increase the irritant effects of a mustard poultice.

Internally it has been employed in various diseases; thus in dyspepsia, as a gastric stimulant; given in spirit and water it is a popular remedy for preventing the return of a paroxysm of an intermitting fever. Barbier says, in some cases where large doses have been taken, death has occurred, in consequence, as he asserts, of some pre-existent gastritis, which was increased by the spice.

Hippocrates employed pepper in several diseases. Pliny alludes to its uses as a condiment and expresses his astonishment that it should have come into such general use, since it has neither flavour nor appearance to recommend it. "Quis illa primus experiri cibis voluit," says he, "aut cui in appetenda aviditate esurire non fuit satis?"

When taken in excess, it is injurious to persons of full habit. As a medicine it is given to relieve nausea, or check vomiting, to remove singultus, and as a stimulant in retrocedent gout. Its dose is from 10 to 15 grains. Its infusion has been used as a gargle in relaxation of the uvula.

The local effects of pepper are those of a powerful acrid. These are well perceived when we apply it to the tongue If kept in contact for some time with the skin it causes active inflammation, and brings out a crop of phlyctenæ. The remote effects of pepper are those of a stimulant. "I have seen," says Van Swieten, "a most ardent and dangerous fever raised in a person who had swallowed a great quantity of beaten pepper."

According to Dr. Meli, piperin has the same febrifuge properties as the alkalies of the cinchonas. At the hospital of Ravenna he has cured a great number of cases of intermittent fever by it, and he goes so far as to affirm that its action is more certain, and more prompt than that of the sulphate of quinine. Dr. Elliotson, however, says, "Dr. Roots employed it at this hospital (St. Thomas's) in five or six cases of ague, and ascertained that it cured the disease very well, but not better than quinine. There was no reason, therefore, to prefer it; and as it is far more expensive, none of us have employed it since."[b] The *dose* is much smaller than that of the sulphate of quinine. The dose of pepper itself is from five or six grains to a scruple. The *confection of black pepper* is intended to be a substitute for Ward's paste; its dose is one or two drachms. Black pepper is a constituent of the *confection of rue*. The *ointment of black pepper*, of the Dublin Pharmacopœia, is composed of four ounces of black pepper to a pound of lard.

[a] *Jour. Pharm.* vii. 273.

[b] See Clinical Lecture, reported in the "Lancet," page 409, No. 354.

Myrtus Pimenta.

MYRTUS PIMENTA.—THE JAMAICA PEPPER, (ALLSPICE.)

Class XII. ICOSANDRIA.—Order I. MONOGYNIA.

Natural Order, MYRTACEÆ.——THE MYRTLE TRIBE.

The Pimento or All-spice tree is a native of South America and of the West Indies. It succeeds well in our stoves, if allowed a strong heat, flowering copiously in May and June. It grows abundantly on the hilly parts of the north side of Jamaica, flowering in July, and soon afterwards ripening its fruit. It was cultivated by Philip Miller in 1732, but the date of its introduction is uncertain.

In its native soil this handsome evergreen tree usually rises with a straight or upright trunk to the height of thirty feet, branched towards the top, and covered with a smooth grey bark. The leaves are opposite, on short foot-stalks, often two or three together, and vary in size and shape, but are commonly about four inches long, oblong-lanceolate, smooth, shining, pointed, and of a deep green colour. In their recent state, they have an agreeable aromatic taste, and abound in an essential oil, which appears in minute pellucid dots. The flowers are very numerous but small, and are produced in bunches or trichotomous panicles at the extremity of the branches. The calyx is divided into four roundish segments. The petals are four, reflected, and of a greenish-white colour. The filaments are numerous, longer than the corolla, spreading, of the same colour as the petals, supporting roundish white anthers. The style is simple, erect, with an obtuse stigma. The fruit is a smooth, shining, succulent berry, crowned with the persistent calyx, of a black or dark purple colour when ripe, and containing two kidney-shaped, flattish seeds.

The pimento tree begins to bear fruit in three years after it is planted, and arrives at maturity at seven, when it abundantly repays the patience of the planter. It is particularly fond of a white marly or chalky soil, having a shallow surface of mould, and therefore grows well on those rocky lands which are fit for little else. The berries are picked from the branches in their green state, and are then laid on cloths spread on terraced floors. During the first and second days they are often turned, to be fully exposed to the sun. When they begin to dry they are frequently winnowed, and laid in cloths to preserve them from rain and dews, still being exposed to the sun every day, and removed under cover every evening, till sufficiently dry; which usually happens in twelve days, and is known by the darkness of their complexion and the rattling of the seeds. At this time they appear wrinkled, and are of a very dark brown colour, in which state they are stowed in bags or casks for market. Some planters kiln-dry them, and it seems the most eligible method, as dispatch and security against rain are so very essential, and especially when the crops are more than usually abundant.

The more odoriferous and smaller the berries are, the better are they reckoned. The leaves and bark of the tree are full of aromatic inflammable particles, on account of which the growers are extremely cautious not to suffer any fire to be made near the walks, for if it once catch the trees, they consume with great rapidity. Nothing, it is said, can be more delicious than the odour of the walks in which the trees are planted, particularly when they are in blossom. The friction of the leaves and smaller branches, even in a gentle breeze, diffuse a most grateful fragrance through the air, which is thought to render it very salubrious.

Qualities and Chemical Properties. The berries of the pimento have a resemblance in smell and taste to cloves, juniper-berries, cinnamon, and pepper, or rather a peculiar mixture, somewhat akin to them all; hence their name of *All-spice*. The aromatic odour and warm pungent taste reside chiefly in the rind, or cortical part of the berry. Its virtues are extracted by water, alcohol, and ether. The watery infusion is of a brown colour, and reddens infusion of litmus. With sulphate of iron it strikes a black colour, and lets fall a precipitate. Nitrate of mercury precipitates it of a yellowish brown; superacetate of lead, of a dirty green; and nitrate of silver, of a deep reddish brown colour. It forms a precipitate with the infusion of yellow bark. The sulphuric and muriatic acids redden it, and throw down a rose-coloured precipitate. The nitric acid forms no precipitate, but gives a yellow hue. The alcoholic tincture is rendered milky, and after a time precipitates by water; the ethereal, when evaporated in water, deposits drops of a greenish yellow volatile oil, a pellicle of pungent nauseous tasted resin, and some extractive. Hence pimento appears to contain a volatile oil, resin, extractive, tannin, and gallic acid. The essential oil is very grateful, and so ponderous as to sink in water.

The following passage is extracted from that charming work, the Flora Domestica:—

In Tripoli, on the celebration of a wedding, the baskets of sweetmeats, &c. sent as wedding presents, are covered with flowers; and although it is well known that they frequently communicate the plague, the inhabitants will even prefer running the risk, when that dreadful disease is abroad, rather than lose the enjoyment they have in their love of flowers. When a woman in Tripoli dies, a large bouquet of fresh flowers, if they can be procured, if not, of artificial, is fastened at the head of her coffin. Upon the death of a Moorish lady of quality, every place is filled with fresh flowers and burning perfumes; at the head of the body is placed a large bouquet, of part artificial, and part natural, and richly ornamented with silver; and additions are continually made to it. The author who describes these customs also mentions a lady of high rank, who regularly attended the tomb of her daughter, who had been three years dead: she always kept it in repair, and, with the exception of the great mosque, it was one of the grandest in Tripoli. From the time of the young lady's death, the tomb had always been supplied with the most expensive flowers, placed in beautiful vases; and, in addition to these, a great quantity of fresh Arabian Jessamines, threaded on thin slips of the Palm-leaf, were hung in festoons and tassels about this revered sepulchre. The mausoleum of the royal family, which is called the *Turbar*, is of the purest white marble, and is filled with an immense quantity of fresh flowers; most of the tombs being dressed with festoons of Arabian Jessamine and large bunches of variegated flowers, consisting of Orange, Myrtle, Red and White Roses, &c. They afford a perfume which those who are not habituated to such choice flowers can scarcely conceive. The tombs are mostly of white, a few inlaid with coloured marble. A manuscript Bible, which was presented by a Jew to the Synagogue, was adorned with flowers; and silver vases filled with flowers were placed upon the ark which contained the sacred MS.[a]

The ancients used wreaths of flowers in their entertainments, not only for pleasure, but also from a notion that their odour prevented the wine from intoxicating them: they used other perfumes on the same account. Beds of flowers are not merely fictitious.[b] The Highlanders of Scotland commonly sleep on heath, which is said to make a delicious bed; and beds are, in Italy, often filled with the leaves of trees, instead of down or feathers. It is an old joke against the effeminate Sybarites, that one of them complaining he had not slept all night, and being asked the reason why, said that a rose-leaf had got folded under him.

In Naples, and in the Vale of Cachemere (I have been told also that it sometimes occurs in Chester,) gardens are formed on the roofs of houses: "On a standing roof of wood is laid a covering of fine earth, which shelters the building from the great quantity of snow that falls in the winter season. This fence communicates an equal warmth in winter, as a refreshing coolness in summer, when the tops of the houses, which are planted with a variety of flowers, exhibit at a distance the spacious view of a beautifully chequered parterre." (Forster.) The famous hangings of Babylon were on the enormous walls of that city.

A garden usually makes a part of every Paradise, even of Mahomet's. In Milton's Paradise, the occupation of Adam and Eve was to tend the flowers, to prune the luxuriant branches, and support the roses, heavy with beauty.

Medical Properties and Uses.—As a condiment, pimento is very generally employed; and in medicine is much used as an adjunct to bitters in dyspepsia when attended with much flatulence; also in arthritic and hysterical affections. The watery infusion, sweetened with sugar and added to a little milk, is readily taken by children, and is an excellent cordial in malignant measles, scarlatina, small-pox, and other fevers of a typhoid description. But it is principally employed to cover the taste of other medicines, and to impart warmth.

Off. Prep.—	Aqua pimentæ.	*L. E. D.*
	Oleum pimentæ.	*L. E. D.*
	Pilulæ opiatæ.	*E.*
	Spiritus pimentæ.	*L. E. D.*
	Syrupus rhamni.	*L.*

[a] See Tully's Narrative of a Residence in Tripoli.

[b] Moore in his notes to Lalla Rookh, says, "the roses of the Sinan Nile, or garden of the Nile, attached to the Emperor of Morocco's palace, are unequalled; and mattrasses are made of their leaves, for men of rank to recline upon."

Ananassa sativa.

ANANASSA SATIVA.—COMMON PINE APPLE.

CLASS VI. HEXANDRIA.——ORDER I. MONOGYNIA.

NATURAL ORDER, BROMELIACEÆ.——THE PINE-APPLE TRIBE.

A trifid superior calyx, a corolla of three petals, with a scale at the base of each petal, flowers growing in a close spike on a scape, which is leafy at the top; as the spike of flowers ripens it becomes a fleshy, scaly strobile, like the cone of some species of pine tree, crowned at top by the bush of leaves.

The Pine Apple is the Bromelia Ananas of Linneus. The Generic name was originally Ananas, from Nana, its common name in the Brazils; and the Queen Pine is named the Ananas Ovata, in the earlier editions of Miller's Dictionary; but Linneus changed it to Bromelia, in memory of Olaus Bromel, Swedish Naturalist, and included under it the Karatas, or Wild Pine, till then considered a distinct genus.

The genus Bromelia has lost much of its interest and importance since the pine-apple has resumed its original Peruvian name, *Nanas,* now latinised *Ananassa.* The various species are remarkable for their power of subsisting for a long period on the fluids they contain, or on what they can absorb from the atmosphere, without any communication with the earth. Hence they are favourites with those who patronise hanging gardens, and in Mexico are commonly suspended to the balconies, for the sake of filling the houses with their delightful fragrance. Some of the Bromeliæ are planted as hedges, and the leaves of others, as the Grewatha, are made into ropes.

(*The different modes of cultivating the Pine-apple.*—London, 1822.)

The fruit of the *Ananassa sativa,* Lindl., says a writer in the Penny Cyclopædia, is a tropical plant, indigenous to South America and some of the West India Islands. It has become so perfectly naturalized in many parts of the hot regions of Asia and Africa, that it has been thought to be likewise a native of those countries. When the British troops invaded Burma, they found the woods around Rangoon abounding in wild pine-apples, and a variety from the back of the Black Pagoda was in great request for its excellence: in the Malay Archipelago it acquires an enormous size, and sports into a variety called *the double pine apple,* each pip of its fruit growing into a branch bearing a new pine-apple. It was, however, first introduced into Europe from South America, and, as it is recorded by M. Le Cour of Leyden, about the middle of the seventeenth century: from Holland it was brought to this country in 1690, by the Earl of Portland, according to the Sloanean MSS. in the British Museum. There is a painting, formerly in the collection of Horace Walpole, in which Charles II. is represented as being presented with the *first* pine-apple by Rose, his gardener; but there are some doubts whether that fruit was grown in England or obtained from Holland. It may, however, be fairly concluded that pine-apples were exceedingly rare in this country, even at the tables of the nobility, in the beginning of the last century; for in 1716, Lady Mary Wortley Montagu remarks that pine-apples were on the electorial table at Hanover when she was there that year, on her journey to Constantinople; and she states that she had never previously seen that species of fruit. (*Letters of Lady M. W. Montagu.*) Since that period the cultivation of the pine-apple has been prosecuted with perseverance in Britain, but frequently the results have been very disproportionate to the expense incurred. Within the last twenty years, however, success has been more general; and in many instances a surprising degree of perfection has been attained, much greater indeed in England, than in any other country having to contend with an extra-tropical climate, for instances are on record of pine-apples weighing 13lbs. and 14lbs. avoirdupois, and from 7lbs. to 8lbs. is by no means an uncommon weight for a single fruit. At the present day the pine-apple in England is so abundantly produced, that although expensive, it is very common. Its delicious flavour, and the noble appearance which a well-grown fruit exhibits, render the cultivation of it a special object of horticultural enterprise and skill.

It has been already stated that this plant is an inhabitant of the tropics, and it may be added, near the level of the sea. The latter circumstance it is necessary to remark, because if it were a mountain plant, even though tropical, it might be natural for it to endure a comparatively low degree of temperature. But according to Beyrich (*Gardener's Magazine*, iii. 442), 'the pine-apple in its wild state is found near the sea-shore, the sand accumulated there in downs serving for its growth, as well as for that of most of the species of the same family. The place where the best pine-apples are cultivated is of a similar nature. In the sandy plains of Praya Velha and Praya Grande, formed by the receding of the sea, and in which no other plant will thrive, are the spots where the pine-apple grows best.' The temperature at the level of the sea, at, or near the equator, varies but little throughout the year; for instance, the mean temperature of the warmest month at Cumana, 10° 27′ N. lat., is, according to Humboldt, 84·38°, and that of the coldest 79·16°. At Havana, on the skirt of the tropics, the mean of the warmest month is 83·84°; that of the coldest 69·98°. At Vera Cruz the mean temperatures of the warmest and coldest months are respectively 81·86° and 71·06°.

In that charming passage where Thomson calls on Pomona to convey him to her citron groves, he thus apostrophizes the splendid fruit which we have described:—

> Oft in humble station dwells
> Unboastful worth, above fastidious pomp.
> Witness, thou best Anana, thou the pride
> Of vegetable life, beyond whate'er
> The poets imag'd in the golden age.
> Quick let me strip thee of thy tufty coat,
> Spread thy ambrosial stores, and feast with Jove!

Nor is the following extract from Cowper inapplicable:—

> Grudge not, ye rich—since luxury must have
> His dainties, and the world's more numerous half
> Lives by contriving delicates for you—
> Grudge not the cost. Ye little know the cares,
> The vigilance, the labour, and the skill,
> That day and night are exercised, and hang,
> Upon the ticklish balance of suspense;
> That ye may garnish your profuse regales
> With summer fruits brought forth by wintry suns.
> Ten thousand dangers lie in wait to thwart
> The process. Heat and cold, and wind and steam,
> Moisture and drought, mice, worms, and swarming flies,
> Minute as dust, and numberless, oft work
> Dire disappointment, that admits no cure,
> And which no care can obviate. It were long,
> Too long, to tell the expedients and the shifts,
> Which he that fights a season so severe
> Devises, while he guards his tender trust;
> And oft at last in vain.

Pine-apple Cream. Infuse the rind of a pine-apple in boiling cream, and proceed as in other creams, only this cream is almost always moulded and freezed [frozen].

Pine-apple water ice of fresh or preserved fruit. Take a half-pint of pine-apple syrup, the juice of three lemons, a pint of water, and a few slices of pine-apple in dice,—freeze. For fresh pine-apple, take a pint of syrup to a pound of grated fruit, and half a pint of water; rub through a sieve and freeze.

Meg Dods' Cookery, 5th edit. pp. 348—9.

In *Les Français. Mœurs Contemporainres*, it is said of the physician, *c'est lui qui a inventé la salade d'Ananas.*

In the language of flowers the Pine-Apple signifies "you are perfect."

Spigelia Marilandica.

SPIGELIA MARILANDICA.—MARYLAND WORM-GRASS, OR CAROLINA PINK.

Class V. PENTANDRIA.—Order I. MONOGYNIA.

Natural Order, SPIGELIACEÆ.—THE WORM-SEED TRIBE.

Of this genus, which derives its name from Adrian Spigelius, a distinguished botanist, and Professor of Anatomy and Surgery at Padua, there are besides the *marilandica* but four species; three natives of Brazils and Cayenne, the other of Jamaica. The present species is indigenous in all the southern states of America from Pennsylvania to Georgia and Louisiana; but it will not bear the severity of a northern winter. It grows in rich dry soils, on the borders of woods, and flowers from May to July. It was introduced into this country in 1694.

Spigelia *marilandica* is a low perennial plant, seldom more than eight or nine inches high in this country, but in its native soil sometimes attaining a height of nearly two feet. The root is horizontal, and consists of a great number of slender fibres, forming together a large bunch. When recent they are of a yellow colour, but become black on keeping. From the root proceed several erect, herbaceous, annual, smooth stems, four-sided, and of a reddish-purple colour. The leaves are opposite, sessile, ovato-acuminate, entire, and smooth. The stem is terminated by a spike of flowers, ranged on one side of the foot-stalk, and supported on short peduncles, Calyx short, cut into five acute segments; corolla funnel-shaped, of a deep crimson externally, and pink within; having the five segments of the border of a yellow colour, tinged with green; the stamens are five, shorter than the corolla, supporting oblong sagittate anthers; germen superior, ovate; style the length of the corolla, terminated by a long fringed stigma. The capsule is double, two-celled, and contains many seeds.

Qualities and Chemical Properties.—Spigelia is a mucilaginous plant, with a mild and not very disagreeable taste. The infusion and decoction of the root and leaves afford a flocculent precipitate with alcohol. They are discoloured, but not precipitated by silicated potash. They have little sensibility to gelatin, although the tincture is made turbid by it. After the decoction was filtrated from the mucus, which had been coagulated by alcohol, it gave a precipitate with nitrate of mercury, but none with muriate of tin. Sulphate of iron caused a dark green precipitate from the decoction, and but little change in the tincture. No distinct evidence of resin presented itself. A substance, which may perhaps be considered a variety of extractive matter, appears to exist in this plant, as the tincture was affected in nearly the same manner by the salts of tin and mercury above mentioned, as the filtrated decoction. Water may be considered an adequate solvent for the chief proximate principles of this plant.

M. Feneuille has analyzed the leaves and roots of the Spigelia: he finds that

The leaves yield,
- Chlorophylle, mixed with a fatty oil,
- Albumen,
- Nauseous bitter substance,
- Mucus,
- Gallic acid,
- Woody fibre,
- Malate of potass, of lime, &c.
- Woody fibre,
- Malate of potass and of lime,
- Silex,
- Oxide of iron.

The roots yield,
- Fatty oil,
- Volatile oil,
- Resin, in small quantity,
- Bitter substance,
- Saccharine mucus (*mucoso-sucré,*)
- Albumen,
- Gallic acid,

The bitter substance is said to be the active part, and to exist in greater abundance in the leaves, than in the root. It is of a brown colour, and taken internally produces vertigo, and a kind of intoxication.

Medical Properties and Uses.—This plant was first used by the Cherokee Indians, as an anthelmintic. Drs. Lining, Garden, and Chambers, first introduced it to notice, and their subsequent experience tended to confirm its utility. The root possesses the greatest activity, and is given in doses of from grs. x. to 3j. two or three times a day. If it prove purgative it is said to be most effective; and should it not, it must be conjoined with cathartics, which prevent the narcotic symptoms, such as stupor, headache, dilated pupils, flushings of the face, and stiffness of the eyelids, that so frequently follow its administration. It is said to be most useful in *lumbrici;* and it is to its acrid narcotic principle, that Dr. Good attributes the vermifuge powers which it possesses, in common with *S. anthelmia,* a native of Jamaica. Notwithstanding what has been advanced in its favour, we consider it an unnecessary appendage to our materia medica; for independently of its deleterious properties, its real anthelmintic ones are somewhat equivocal. As our

pharmacopœia gives no direction for its administration, for the benefit of those who wish to make trials of it, we subjoin the following form:—

℞ Spigeliæ radicis concisæ ʒ ß
Sennæ Foliorum ʒij.
Aurantii corticis concisi.
Santonici seminum contus.
Fœniculi seminum contus. āā ʒj.
Aquæ ferventi ℥ xij.

Macera per horas duas in vase leviter clauso, et cola.—Dose, a wine glassful three times a day on an empty stomach.

This month, says William Howitt, more than all others shows us,

The continued Frost—a frost that, day after day, and week after week, makes a steady abode with us, till the beaten roads become dusty as in summer. It every day penetrates deeper into the earth, and farther into our houses; almost verifying the common saying, "January will freeze the pot upon the fire." Our windows in the morning are covered with a fine opaque frost-work, resembling the leaves and branches of forest-trees, and the water is frozen in the ewer. The fish in ponds, reservoirs, and shallow waters, now suffer from their being frozen over, and great numbers perish. In many places you may see them moving under the ice, seeking some access to air or food; in others, firmly embedded in the ice, their bright and silvery sides shining through it. In dikes and small streams, or pools, boys have great sport in breaking the ice and drawing out these poor frozen creatures. I have seen, on such occasions, eels and other fish of a considerable size taken out; and I have seen, too, fishes frozen up in a solid ice, and apparently dead, on being gradually thawed, recover their animation. The small birds are hopping, with half-erected feathers, upon our door-sills, driven to seek relief from creation's tyrants by the still more pressing tyranny of cold and famine. The destruction of birds, and of all the smaller animals, in a continued frost, is immense, particularly if it be accompanied by snow. Snow is a general informer, betraying the footsteps of every creature, great and small. The poacher and the gamekeeper are equally on the alert while it lies freshly upon the ground, the one to track game, the other vermin; and thousands of pole-cats, weasels, stoats, rats, otters, badgers, and similar little nightly depredators, are traced to their hiding-places in old buildings, banks, and hollow trees, and marked for certain destruction. The poacher, particularly on moonlight nights, makes havoc with game. Partridges, nestled down in a heap on the stubble, are conspicuous objects; and hares, driven for food to gardens and turnip-fields, are destroyed by hundreds. Wood-pigeons are killed in great numbers on cabbage and turnip-fields by day; in the neighbourhood of large woods, where they abound, the farmers' boys set steel-traps for them in the snow, laying a cabbage-leaf on each trap, to which they fly eagerly, and are abundantly captured; and by moonlight they are shot in the trees where they roost. Larks frequent stubbles in vast flocks, and are destroyed by gun or net. Immense numbers of these delightful songsters are sent, during the winter months, from the neighbourhood of Dunstable to London, and may be seen by basketsfull at the poulterers'. When they have congregated in flocks on the approach of winter, they arrive in that neighbourhood lean and feeble; but they soon become strong and in good condition, being supposed to pick up fine particles of chalk with their food. They are in season from Michaelmas to February; and are not only served up at the inns in that town, by a secret process of cookery, in such a manner as to be regarded by travellers as a peculiar luxury, but are thence sent, by a particular contrivance of packages, ready dressed to all parts of England.

There is an account, illustrated by an engraving, in the second volume of Hone's "Every-Day Book," of a singular mode of killing larks, at this season, in some parts of France and England.

In France they use what is called a *miroir*, or twirler. This is a piece of mahogany highly polished, or a piece of common wood with bits of looking-glass fixed in it. It is fixed on an upright spindle, and twirled by pulling a string; and the larks, as they fly over, seeing the glitter of it, are irresistibly attracted by it, hover over it, and are shot in abundance. However frequently shot at, the survivors still are attracted by the twirler. Hone's correspondent says that a friend of his shot six dozen before breakfast, without a boy, as is the common plan, to pull the twirler for him; and that it is not only the great amusement of the gentlemen in France in winter, but that ladies on fine, dry, frosty mornings, go out in numbers to watch this sport; and as many as ten or a dozen parties are, at one time, firing about five hundred yards apart, and yet the larks continue coming.

In England the Dunstable people have a similar invention, which is called a larking-glass, which is fixed on a pole and twirled, and the larks come darting down to it in great numbers, and a net is drawn over them. Besides great quantities being thus taken, and also morning and evening with trammelling nets, others in severe weather are taken by laying a train of corn and chaff in the snow, and placing along it a line to which is fastened, at certain intervals, nooses of horse-hair, in which their feet are entangled.

As if the feathered race did not suffer enough from famine and the severity of the weather, everybody seems now up in arms against them. The law, with a spirit of humanity honourable to the nation, is opposed to *tracking game in a snow*, yet this is a time of peculiar enjoyment to the sportsman. Water-fowl are driven from their secluded haunts in meres and marshes to open streams; snipes and woodcocks to springs and small runnels; where they become accessible, and easily found. In towns and villages, every mechanic and raw lad is seen marching forth with his gun, to slay his quota of red-wings, field-fares, &c. which now become passive from cold and hunger.

Strychnos Nux-vomica.

STRYCHNOS NUX-VOMICA.—POISON-NUT.

Class V. PENTANDRIA.——Order I. MONOGYNIA.

Natural Order, ~~LURIDÆ.~~

Fig. (*a*) represents the germen, pistil, and calyx; (*b*) the corolla spread, showing the anthers magnified; (*c*) a section of the fruit of the natural size.

The Strychnos Nux Vomica is a native of the East Indies, and is very common on the coast of Coromandel, where it flowers during the cold season. It is the tree called, by Plunknet, *Cucurbitifera Malabarensis œnopliæ foliis rotundis, fructu orbiculari rubro, cujus grana sunt nuces vomicæ officinarum;* described and figured in the Hortus Malabaricus, under the name of *Caniram.*

This species of Strychnos is a middle-sized tree, with a short, crooked, thickish trunk, irregularly branched, and covered with a smooth ash-coloured bark. The leaves are opposite, short, petioled, ovate, shining, smooth on both sides, entire, three to five-nerved, differing in size from one inch and a half to four inches long, and from three to four inches broad. The flowers are small, greenish-white, and collected into small terminal cymes; they are said to exhale a strong disagreeable odour. The calyx is five-cleft, and deciduous: the corolla is monopetalous, of a pale green colour, and divided at the border into five segments: the filaments are five, very short, with roundish anthers; the germen is superior, roundish, and crowned with a single style, the length of the tube of the corolla. The fruit is a berry about the size of a pretty large apple, globular, covered with a smooth hard rind, of a rich orange colour when ripe, and filled with a soft jelly-like pulp. The seeds are generally five in number, and immersed in the pulp of the fruit. They are round and flat, about an inch in diameter, and a quarter of an inch thick, with a prominence in the middle, of a grey colour externally, and covered with a woolly matter, but internally hard and tough, like horn.

The systematic name, Strychnos, which occurs in Pliny and Dioscorides, is derived from σρτωνυμι, to *overthrow*, in allusion to the powerful effects of the plant to which it was assigned; the Στρυχνος of the Greeks being a kind of *nightshade.* It was Linnæus who adopted this name for the present genus, on account of the analogy of its poisonous qualities with the plant of the ancients.

Qualities and Chemical Properties.—The taste of the vomic nut, which is the seed of the fruit or berry, is intensely bitter; it has little or no smell, and is so hard that it cannot be reduced into powder by beating, but requires to be filed down. According to an analysis by M. Chevreul, it consists of acidulous malate of lime, gum, vegeto-animal matter, bitter matter, fixed oil, colouring matter, (which was yellow, and probably starch, which could not be directly extracted on account of its desiccation,) earthy and alkaline salts, woody hairs, and wax, which latter appears to preserve the perisperm from humidity. Messrs. Pelletier and Caventou have since discovered that the active properties of the plant depend on the two peculiar vegetable alkalies, *strychnia* and *brucia.* The former, strychnia, is also the active principle of the *upas-tieute* of Java.

Poisonous Effects.—It is very generally believed amongst the lower classes of people in this country, that nux vomica, (by them called *rat's-bane,*) is capable of poisoning animals only: and on a coroner's inquest held ten years ago, a juryman observed, that the vulgar imagine that it will not produce death to those persons who are born blind. So strongly, he said, was he impressed with this idea, that he should have had no hesitation in taking a quantity of it, before he had heard, on the present occasion, of its baneful effects on the human constitution. Nux vomica is one of the narcotico-acrid class of poisons, and seems to have a direct power over the spinal cord. It produces laborious respiration, which is followed by torpor, trembling, coma, convulsions, and death. It is fatal to dogs, hares, wolves, foxes, cats, rabbits, rats, ducks, crows, and other birds; hogs and goats eat it with impunity; so do several species of Ramphates or Toucan. Loureiro poisoned a horse by an infusion made of the seeds in a half-roasted state.

"Hoffman reports that a young girl, ten years of age ,labouring under an obstinate quartan fever, took, at two doses, fifteen grains of nux vomica; she died in a short time, after having experienced extreme anxieties, and having made some efforts to vomit."

"A person swallowed in the morning a scruple of nux vomica in powder, and drank afterwards a few glasses of cold water, in order to diminish the bitterness occasioned by this substance. Half an hour after, he appeared to be drunk; his limbs, especially his knees, were stiff, and tense; his walk was staggering, and he was afraid of falling. He took some food, and the symptoms disappeared."

"The administration of nux vomica, and of the root of gentian, to a woman affected with ague, was followed by convulsions, cold and stupor, and almost every part of the body was torpid."—*Scutter's Dissert.*

Dissections of those who have died show no organic lesions; proving that it acts directly on the nervous system: and those who are anxious to see the result of numerous experiments on dogs, and other animals, must consult Orfila's Toxicology; Wepfer's Historia Cicutæ Aquaticæ, p. 248, and Dr. Chapman's American Medical Journal.

TREATMENT.—In the treatment of poisoning by nux vomica, keeping up artificial respiration is of the utmost importance; ammonia and hot brandy and water should also be given.

It would seem, too, from the following interesting account, that there exists a plant which is itself an antidote against this and some other vegetable poisons:—

" M. Drapiez has ascertained, by numerous experiments, that the fruit of the Feuillea *cordifolia* is a powerful antidote against vegetable poisons. This opinion has long been entertained by naturalists, but it appears that M. Drapiez has verified the fact by numerous experiments. He poisoned dogs with the rhus toxicodendron, hemlock, and *nux vomica.*' All those that were left to the effect of the poison, died; but those to whom the fruit of this plant was administered, recovered completely, after a short illness. To see whether this antidote would act in the same way, when applied externally to wounds into which vegetable poisons had been introduced, he took two arrows which had been dipped in the juice of manchenille, and slightly wounded with them two young cats. To one of these he applied a poultice, composed of the fruit of the Feuillea *cordifolia,* while the other was left without any application. The former suffered no other inconvenience except from the wound, which speedily healed; while the other, in a short time, fell into convulsions, and died. It would appear from these experiments that the opinion entertained of the virtues of this fruit, in the countries where it is produced, is well founded. It loses its virtues, if kept longer than two years after it has been gathered."—*Annals of Philosophy,* v. 15, p. 389.

MEDICAL PROPERTIES AND USES.—For a century nux vomica has been known as a powerful medicine, and employed in a vast variety of diseases, with different degrees of success. Linnæus, who could know but little of pathology, attributed dysentery to irritation of the mucous membrane of the intestines, produced by worms, and recommended these seeds for that disease, in consequence of their intense bitter, and narcotic powers. Hagstrom considered, that a scruple dose, given in the morning, was a specific for dysentery; and Bergius narrates a case, in which the evacuations were stopped for twelve hours, but afterwards returned. Roxburgh says: "the wood is hard and durable, and is used by the natives for many purposes. It is exceedingly bitter, particularly the root, which is used to cure intermittent fevers and the bites of venomous snakes. The seeds are employed in the distillation of spirits to render them intoxicating. The pulp of the fruit seems perfectly innocent, as it is eaten greedily by many sorts of birds." Nux vomica is also occasionally employed by brewers in this country to impart an intoxicating effect to beer.

Dr. Good was never able to give more than seven grains of the powdered nut for a dose, without the head becoming stupid and vertiginous.

The researches of modern physiologists, especially Majendie, Orfila, &c., have ascertained in a precise and definite manner, that nux vomica acts as a direct stimulus to the spinal cord, especially that portion of it which presides over the functions of motion; those of sensation being less evidently under its influence. Physicians have taken advantage of this information, and used the drug with much success in certain kinds of paralysis. The powdered seed was liable to great variations in strength, from dryness, decay, and other causes; its employment was consequently uncertain and dangerous; but chemists now obtain the active principle of this plant in the form of an alkali, *strychnia,* definite in its qualities, and manageable in its doses and combinations.

Thus the deadly arrow-poison of the savage is used in the hands of art to repair the overwrought and exhausted nerves of the intellectualist and the mechanic.

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Punica Granatum

PUNICA GRANATUM.—THE POMEGRANATE TREE.

Class XII. ICOSANDRIA.—Order I. MONOGYNIA.

Natural Order, GRANATEÆ.——THE POMEGRANATE TRIBE.

a Seed.

The Punica *Granatum* is a native of the southern parts of Europe, of Arabia, Japan, Persia, and Barbary, and is much grown in India and Ceylon. Mr. Crawford says, that in the Indian Archipelago it is found only in a cultivated state, and that the finest fruit is brought into Upper India, from Eastern Persia; while Olivier in his travels in the Ottoman Empire, informs us that those of Ghemlek are the finest in Turkey. It has also been introduced into the West Indies from Europe, and bears fruit of a very superior description. It blossoms luxuriantly in our own country, but, as the flowers are generally monsters, fruit is seldom met with, and never of a proper flavour. The tree was well known to the ancients, and Venus is fabled to have planted the first in Cyprus. It is said by Theophrastus to inhabit the same spots that the myrtle does, but although it is still found in Macedonia, the latter plant is not to be seen with it. According to Dierbach[a] it was esteemed by Hippocrates; and Pliny refers to it in the following terms: "Interior Africa ad Garamantas usque, et deserta palmarum magnitudine, et suavitate constat, nobilibus maxime circa delubrum Hammonis. Sed circa Carthaginem Punicum malum cognomine sibi vindicat."—lib. xiii. ch. 19. p. 197.

This tree rises to the height of eighteen or twenty feet; it is covered with a brownish bark, and is divided into many slender branches, which are armed with spines. The leaves are opposite, or ternate, about three inches long, sessile, wavy, entire, oblong, or lance-shaped, pointed at both ends, and of a bright green colour, destitute of dots, and without marginal veins. The flowers are large, of a rich scarlet colour, solitary, or two or three together; and are produced at the extremities of the young branches, from June to September. The calyx is turbinate, thick, fleshy, of a fine red colour, and divided into five acute segments, which are valvate in æstivation. The corolla is composed of five large roundish wrinkled petals, rather spreading, and of a scarlet colour. The stamens are indefinite and perigynous. the filaments capillary, furnished with oblong yellow anthers, 2-celled, and bursting in front by two chinks. The germen is inferior, roundish, with a simple style, the length of the stamens, and capitate papulose stigma. The fruit is as big as an orange, globular, somewhat compressed, and indehiscent; it contains numerous angular, exalbuminous seeds, each enveloped in a distinct very juicy rose-coloured pulp, and is crowned with the limb of the calyx, and covered with a thick tawny coriaceous rind, which is the calycine tube.

Qualities and Chemical Properties.—The flowers (*Balaustra* of the ancients[b]) are of a beautiful red colour, nearly inodorous, but somewhat of a styptic taste. The juice, which is contained in the membranous cells, exhales a vinous smell, when fresh; it is of an agreeable subacid flavour, is refreshing, and contains a great deal of mucilage, united to a little tannin. The bark of the fruit has been used for making leather, and, besides mucilage, it contains a volatile oil, and tannin.

In the south of Europe the pomegranate is cultivated for its fruit; and, in some places as a hedge plant. It is also grown as an ornamental tree, the stem being trained to the height of six or eight feet, and the head afterwards allowed to spread and droop down on every side. In the conservatories in the neighbourhood of Paris, and in France generally, the double flowered variety is planted in large boxes, and treated like the orange tree. For this purpose, young plants are grown in the orange nurseries about Nice and Genoa, and exported to different parts of the world. Both the single and the double flowered varieties are very frequently trained against walls, both in France and Italy; and the more ingenious cultivators inter-

[a] Materia Medica of Hippocrates.

[b] Flos balaustrum vocatum, et medicinis idoneus, et tingendis vestibus, quarum color inde nomen accepit.—*Pliny. l. c.*

mingle the branches of the one sort with those of the other, so as to make a display of both double flowers and fruit, apparently on the same tree.

Medical Properties and Uses.—The pulp of the fruit may be eaten by patients who are suffering from the thirst of ardent fever; and combined with sugar, or honey, is very refreshing. By some it is said to be diuretic. The Hindoo doctors prescribe it, combined with saffron, when the habit is preternaturally heated. The bark of the fruit is a powerful astringent, and as it readily gives out its properties to water, it has been strongly recommended by Dr. Cullen as a medicine of which we may frequently make use for relaxation of the gums and throat.

The pulp which encloses the seeds is sometimes acid, sometimes sweet; and in other cases vinous, astringent, and refreshing. A syrup is made from this pulp by foreign druggists, which is employed as an astringent and detergent; the dried flowers are likewise kept in shops, for making infusions for the same purpose. Lord Bacon recommends the juice of pomegranate as good for liver complaints, and Woodville says, that it is preferable to that of oranges, in cases of fever.

The Mahometan physicians consider the bark of the root to be a specific in cases of tape-worm;[a] and it is probable that they borrowed their knowledge from Avicenna, who is said to be their favourite author. They boil two ounces of the fresh bark, in a pint and a half of water, till half only of that quantity remains; of this, when cold, a wine-glassful is prescribed every half-hour, till the whole be taken. It occasionally produces a little nausea, says Dr. Ainslie, but seldom fails to destroy the worm, which is soon passed.

The bark of the pomegranate is very astringent, and its decoction may be used as a gargle in relaxed sore-throat; but its principal use is as a remedy against tape-worm. Celsus says, that the patient is to eat a good deal of garlic, and then take an emetic; and the next day he is to drink a decoction of the small roots of the pomegranate tree, with a little *nitrim*, i. e., carbonate of soda.[b] According to some writers, it is absolutely necessary to employ the bark of the root, while in the London Pharmacopœia, that of the fruit is ordered. The London formula directs two ounces of pomegranate rind, and a pint and a half of distilled water to be boiled down to a pint, and strained. The dose of this may be two table spoonfuls three or four times a day. Although used by the natives of Hindostan, and even by the negroes of St. Domingo, the use of pomegranate bark seems to have been forgotten in Europe until its merits were again brought into notice by Dr. Gomez of Lisbon, and Mr. Breton's paper in the Medico-Chirurgical transactions.

Magendie gives the following account of the method of administering this medicine. The day before the decoction of pomegranate root is taken, the patient generally takes an ounce and a half, or two ounces of castor oil, with an equal quantity of syrup of lemons. The patient is then confined to herb broth and the lowest diet, until the following decoction has been administered;

Take of the bruised bark of the pomegranate root, either fresh or dry, two ounces.
Common water, two pounds.

Mix them together and let them soak, without heat, for twenty-four hours; then boil them over a moderate fire down to a pint, and strain. This decoction is to be taken in three glassfuls at intervals of half an hour, or three quarters of an hour.

Generally in one hour, and seldom so long as two hours after the third dose, the tape-worm is voided whole and at once, rolled up, and strongly knotted in several places.

Sometimes the first and second glassfuls are thrown up again; but the third glass must be taken, just the same. It has been asserted that the pomegranate bark, given in the dose we recommend, may cause serious symptoms; but M. Bourgeoise, who always administers it in this dose, has not met with anything that would incline him to diminish the quantity; indeed, he has given more. If the whole of the worm is not voided, it will be necessary to continue the vermifuge decoction the next day, and even the following ones.[c]

[a] Vide Ainslie's Materia Indica, vol. i. p. 323.

[b] De Medicinâ, Lib. iv. Cap. 17.

[c] Formulaire pour la préparation et l'emploi de plusieurs nouveaux médicaments. 8e édit.

Grenadine. This is a crystalline substance procured from pomegranate bark. It is neutral, that is to say, neither acid nor alkaline, and so sweet that it might be taken for a sort of sugar; but it does not possess the property of fermenting. Magendie says, he is not aware that grenadine has been tried as a vermifuge. "Cette épreuve serait cependant curieuse à tenter."

Sir Thomas Elyot tells us, in his Castle of Health, that "pomegranates be of good juice, and profitable to the stomach; especially they which are sweet." They are also agreeable to the palate, in our opinion; but on this there is some division of sentiment. Whether delicious or not, however, the mere taste of a pomegranate once decided the fate of a goddess, if there be any truth in Ovid.

When Pluto had carried off Proserpine, her mother Ceres was desirous to recover the fair bride; on which she was informed by Jupiter that though the match was far from a bad one, Proserpine was still recoverable, provided she had eaten nothing in the shades below. Unluckily, however, she *had* eaten seven pomegranate seeds; and one Ascalaphus turned informer against her. As a punishment for his shabbiness, the Queen of Erebus changed him into an owl. We subjoin the latter part of the story in the original, for the gratification of our classical readers.[a]

In Romeo and Juliet, *the nightingale is represented as singing on the pomegranate tree; the most* melodious of birds on one of the most graceful of trees!

Jul. Wilt thou be gone? it is not yet near day;
It was the nightingale, and not the lark
That pierc'd the fearful hollow of thine ear;
Nightly she sings on yon pomegranate tree:
Believe me, love, it was the nightingale.

Act iii. *Scene* 5.

The pomegranate is not forgotten by Thomson, in the *fruity* passage of his Summer, where he calls on the goddess of orchards to refresh him amidst the heat of the torid zone.

Bear me, Pomona, to thy citron groves;
To where the lemon and the piercing lime,
With the deep orange, glowing through the green,
Their lighter glories blend. Lay me reclin'd
Beneath the spreading tamarind that shakes,
Fann'd by the breeze, its fever-cooling fruit.
Deep in the night the massy locust sheds,
Quench my hot limbs; or lead me through the maze,
Embowering endless, of the Indian fig;
Or, thrown at gayer ease, on some fair brow,
Let me behold, by breezy murmurs cool'd,
Broad o'er my head the verdant cedar wave,
And high palmettoes lift their graceful shade.
Oh! stretch'd amid these orchards of the sun,
Give me to drain the cocoa's milky bowl,
And from the palm to draw its freshening wine!
More bounteous far than all the frantic juice
Which Bacchus pours. Nor, on its slender twigs
Low-bending, be the full pomegranate scorn'd;
Nor, creeping through the woods, the gelid race
Of berries.

"King Xerxes cutting an oddly great pomegranate, and beholding it fair and full of kernels, said in the presence of all his council, he had lever (rather) have one such friend as Zopyrus was, than as many Babylons as there were kernels in the pomegranate." (Sir T. Elyot. *Governor.*)

Soil, Situation, Propagation, &c. The single wild pomegranate will grow in almost any soil; but the double flowered varieties, and the species when it is intended to bear fruit, require a rich free soil. The double flowering pomegranate trees, grown in boxes by the French gardeners, are planted in the very richest soil that can be composed, and a portion of this soil is renewed every year when the roots are severally pruned. The head, also, is thinned out, and so cut as to multiply, as much as possible, short slender shoots; on the points of which alone the flowers are produced. In training the pomegranate against a wall in England, it is necessary to keep this constantly in view; for if these slender shoots are cut off, no flowers will ever be produced. The plant is easily propagated by cuttings of the shoots or of the roots, by layers, or by grafting one sort on another. It also rises freely from seeds, but these ought to be sown immediately on being removed from the fruit; because they very soon lose their vital powers.

[a] Dixerat: at Cereri certum est educere natam.
Non ita fata sinunt; quoniam jejunia virgo
Solverat; et cultis dum simplex errat in hortis,
Pœniceum curvâ decerpserat arbore pomum,
Sumtaque pallenti, septem de cortice grana
Presserat ore suo; solusque ex omnibus illud
Viderat Ascalaphus, quem quondam dicitur Orphne
Inter Avernales haud ignotissima Nymphas,
Ex Acheronte suo furvis peperisse sub antris:
Vidit, et indicio reditum crudelis ademit.
Ingemuit regina Erebi; testemque profanum
Fecit avem; sparsumque caput Phlegethontide lymphâ
In rostrum, et plumas, et grandia lumina vertit.
Ille sibi ablatus fulvis amicitur ab alis,
Inque caput crescit, longosque reflectitur ungues,
Vixque movet natas per inertia brachia pennas,
Fœdaque fit volucris, venturi nautia luctûs,
Ignavus bubo, dirum mortalibus omen.

Ovid. Metam. Lib. v. *v.* 533. 550.

This shrub is considered the emblem of democracy; probably from its fruit consisting of numerous seeds, which form its valuable part; and a worthless crown. In allusion to the latter circumstances, Queen Ann of Austria had for a device a pomegranate, with the motto, "My worth is not in my crown." (Reid's Hist. Bot.) And Philips says, that the French, in the Island of St. Vincent, had a riddle on the pomegranate, which was "Quelle est la reine qui porte son royaume dans son sein?" alluding to the same properties.

In the Himalayas, Dr. Royle informs us, that the young pomegranate grows wild; and, also, that it is planted near villages. It forms quite a wood in Mazenderan, whence the dried seeds are exported for medicinal use. The famous pomegranates without seeds are grown in the rich gardens, called Ballabagh, lying under the snowy hills near the Caubul river. They are described as delicious about Hadgiabad, and throughout Persia. "Though grown in most parts of India, large quantities, of a superior quality, are yearly brought down by the northern merchants from Caubul, Cashmere, and Boodurwar." At a very early period, the pomegranate appears to have attracted the attention of mankind. It is mentioned by Theophrastus under the name of Rhoa; the Phœnicians named it Sida, the Greeks Cytinos, and the Romans, according to Pliny; Malus Punica. The Jews appear to have held the tree in great veneration. It is mentioned, in the Old Testament, as one of the fruits discovered in the Land of Promise; and while the Israelites sojourned in the wilderness it was selected as one of the ornaments to the robe of the ephod. The two large pillars of brass, made by Hiram for the porch of Solomon's Temple, were ornamented with carvings of the pomegranate; and, from other passages in Holy Writ, a wine appears to have been made from it. Pliny speaks of getting a colour from the flowers for dying cloth a light red. He mentions nine varieties, including the sweet, the sour, the temperate, the austere, and the wine-flavoured. The rind of the sour kind he says is the best for tanners and curriers to dress their leather with. The celebrated kingdom of Granada is supposed to have derived its name from the trees planted in it by the Moors, which is rendered highly probable by the arms of the city of Granada being a split pomegranate. The earliest mention of the pomegranate in England is in Turner's Herbal, in 1548; but it was probably introduced long before that time by the monks, and planted in the gardens of the religious houses. For a long period, it was kept exclusively in houses, along with orange trees, and we find, accordingly, that it fruited in the orangery of Charles the first, as Parkinson informs us, under the care of Tradescant, when he was that king's gardener. It seems to have been first tried in the open air by Miller of Chelsea; and at the suggestion of Bradley, in the garden of Camden House, and in other gardens about Kensington, as the oldest specimens in the neighbourhood of London are of these places. At present, it is in most collections as an ornamental wall tree, and it ripens its fruit, or at least, produces them of the full size, frequently, in the neighbourhood of London in fine seasons; but the varieties most generally cultivated are those with double flowers. The largest double flowered pomegranate in England is supposed to be that trained against the walls of Fulham Palace, which is at least forty feet high, and fifty feet broad.

The pomegranate is mentioned by the earliest poets, particularly by Homer in the Odyssey. Nicholas Rapin, in his poem entitled *Les plaisirs du Gentilhomme Champêtre*, published 1583, gives the following origin to the pomegranate. A young girl of Scythia having consulted the diviners to know her fortune, was told by them that she was destined one day to wear a crown. This rendered her so proud and vain, that she was easily seduced by Bacchus, on his promising to give her a crown. He soon grew tired, and abandoned her; and when she afterwards died of grief, he metamorphosed her into a pomegranate tree; on the fruit of which he affixed a crown (alluding to the shape of the calyx;) thus tardily and ambiguously redeeming his promise.

Papaver rhœas.

PAPAVER RHŒAS.—RED POPPY.

CLASS XIII. POLYANDRIA.———ORDER I. MONOGYNIA.

NATURAL ORDER, PAPAVERACEÆ.—THE POPPY TRIBE.

THE Red Poppy is an indigenous annual, growing plentifully in corn-fields, where it frequently proves a very troublesome weed; flowering in June and July. Its geographical distribution is extensive; but it is said not to occur in America.

The stem is herbaceous, upright, branched at top, a foot or more in height, and clothed, as well as the flower-stalks, with strong hairs which spread horizontally. The leaves are sessile, pinnate, or bi-pinnatifid, serrated, and covered with short hairs. The flowers are large, solitary, and stand upon long hairy foot-stalks; the calyx consists of two ovate, hairy, concave leaves, which fall before the flowers expand; the petals are four, large, roundish, undulated, of a deep rich scarlet colour, and generally marked with a black spot at the base. The germen, which becomes a smooth, urn-shaped capsule, is ovate and large, without any style; the stigma is shield-shaped, sessile, scolloped on the edges, and having ten or twelve rays. The fruit is a one-celled capsule, crowned with the stigma, and containing numerous kidney-shaped seeds attached to parietal placentæ.

The poets, says Dr. Johnson, among all those that enjoy the blessings of sleep, have been least ashamed to acknowledge their benefactor. How much Statius considered the evils of life as assuaged and softened by the balm of slumber, we may discover by that pathetic invocation, which he poured out in his waking nights: and that Cowley among the other felicities of his darling solitude did not forget to number the privileges of sleeping without disturbance, we may learn from the rank that he assignes among the gifts of nature to the poppy, 'which is scattered,' says he, 'over the fields of corn, that all the needs of man may be easily satisfied, and that bread and sleep may be found together.'—

Si quis invisum Cereri benignæ
Me putat germen, vehementer errat;
Illa me in partem recipit libenter
Fertilis agri.

Meque frumentumque simul per omnes
Consulens mundo Dea spargit oras:
Crescite, O! dixit, duo magna susten—
tacula vita.

Carpe mortalis, mea dona lætus,
Carpe, nec plantas alias require,
Sed satur panis, satur et soporis,
Cætera sperne.

He wildly errs who thinks I yield
Precedence in the well-cloth'd field,
Tho' mix'd with wheat I grow:
Indulgent Ceres knew my worth,
And to adorn the teeming earth,
She bade the Poppy blow.

Nor vainly gay the sight to please,
But blest with power mankind to ease,
The Goddess saw me rise,
'Thrive with the life-supporting grain,'
She cried, 'the solace of the swain,
The cordial of his eyes.

'Seize, happy mortal, seize the good;
My hand supplies thy sleep and food,
And makes thee truly blest:
With plenteous meals enjoy the day,
In slumber pass the night away,
And leave to fate the rest.'

C B.

Sleep, therefore, as the chief of all earthly blessings, is justly appropriated to industry and temperance; the refreshing rest, and the peaceful night, are the portion only of him who lies down weary with honest labour, and free from the fumes of indigested luxury; it is the just doom of laziness and gluttony, to be inactive without ease, and drowsy without tranquility. Sleep has been often mentioned as the image of death; 'so like it,' says Sir Thomas Brown, 'that I dare not trust it without my prayers;' their resemblance is, indeed, apparent and striking; they both, when they seize the body, leave the soul at liberty; and wise is he that remembers of both, that they can be safe and happy only by virtue. *Adventurer*, No. 39.

This species of Papaver is readily distinguished from the *Papaver dubium*, which it closely resembles, by the hairs spreading horizontally on the flower-stalks as well as on the stem, and by the short roundish capsule. Being a very common weed, although probably not a native of this country, but introduced with seed-corn from the east, it has received very numerous names; such as *Corn poppy*, *Corn rose*, *Cop rose*, *Canker rose*, *Head-wark*, *&c.* And like most other pretty flowers, it has been celebrated by poets in different ways; thus, from flowering amongst the corn, the red poppies have been supposed, by one, to be upon the look out for Ceres:—

"And the Poppies red,
On their wistful bed,
Turn up their dark blue eyes for thee."

In a Latin poem, by Mr. Landor, Ceres is supposed to have created the Poppy to assuage her anguish during the search for her daughter; and the statues of the goddess are generally adorned with Red Poppies, from their being companions of wheat; but these flowers are more praised by the poet than the farmer, for

"—Poppies nodding mock the hope of toil."
Crabbe's Village.

In Gerard's Herbal we find the following droll account of the Papaver Rhœas by a curious gentleman.

"Moreover, in the said Leyland fields doth grow our garden Rose wilde, in the plowed fields among the corne, in such aboundance, that there may be gathered daily during the time, many bushels of roses, equal with the best garden Rose in each respect: the thing that giveth great cause of wonder, is, that in a field in the place aforesaid, called Glovers field, every yeare that the field is plowed for corne, that yeare it wil be spred over with Roses, and when it lieth by, or not plowed, then is there but few Roses to be gathered; by the relation of a curious gentleman there dwelling, so often remembered in our history.

I have heard that the Roses which grow in such plenty in Glovers field every yere the field is plowed, are no other than Corn Rose, that is, red Poppies, however our author was informed."

The flowers of the Red Poppy, says the *Dictionnaire des Sciences Naturelles*, are easily doubled by cultivation; and gardeners have obtained a great variety of them, which are all more or less agreeable, not only from the number of their petals, but on account of their immense variety of shades, from deep purple to white. The flowers of the double red poppy are not only handsome, but have the advantage of remaining in bloom three or four days; while the petals of the single flowers fall off in a few hours.

Qualities and Uses.—The Petals of the Red Poppy should be gathered just as they begin to blow. They possess a faint narcotic odour, and are generally thought to have a slightly sedative effect. They yield their virtue to boiling water, but are merely used for their fine colouring matter. A syrup of them is directed in the Pharmacopœias, which was formerly prescribed in coughs and catarrhal complaints; but no faith whatever is now placed in its medicinal powers. Opium has been obtained from the capsules, but in so small a quantity, as to render it an object unworthy of the trouble. Still it must be stated, that by some foreign practitioners this extract, as a sedative, is preferred to opium itself.

Off. Prep.—Syrupus Rhœados. L. E. D.

In the language of flowers the Red Poppy denotes evanescent pleasure.

Papaver Somniferum.

PAPAVER SOMNIFERUM.—THE WHITE OR OPIUM POPPY.

CLASS XIII. POLYANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, PAPAVERACEÆ.——THE POPPY TRIBE.

FROM *Papaver*, the Latin name of this plant, are derived the Anglo-Saxon *papig*, the English *poppy*, and the French *pavot*. It is a generally received opinion, that the common garden or White Poppy is a native of the East, but it has naturalized itself in fields and waste grounds in the south of Europe, and even in England, where it is cultivated, chiefly for the sake of the capsules. These are raised in great quantities at Mitcham, in Surrey, for the supply of the London market; the average price of each bag containing 3000 capsules, being about £4 10. The white poppy is found growing spontaneously on the sandy banks of the fen ditches in some parts of Norfolk and Cambridgeshire. We found it growing in great abundance, apparently wild, on a chalky bank, by the side of the Thames, in Ingress Park, Kent, and in an adjoining corn-field. It is a hardy annual, flowering in July, and varying in our gardens in the forms and colours of its rich, beautiful double petals; but easily changing, if neglected, to its single state, and to a pale purple or white hue, having a deep violet stain on each petal. The largest heads, for medical use, are obtained from the single-flowered kind, here figured, which is extensively cultivated in Turkey, Persia, India, and other warm climates, not only for the purpose of obtaining opium, but also on account of the bland oil, which is expressed from the seeds.

The root is white and tapering; the whole plant glaucous and generally smooth, though sometimes the upper part of the stem, as in the garden specimen here figured, bears a few rigid spreading hairs. The stem is round, branched, erect, leafy, and rises to the height of three or four feet. The leaves are large, wavy, alternate, obtuse, lobed, and bluntly notched, embracing the stem with their heart-shaped base. The flowers are three inches broad, various in colour, each on a long terminal stalk. The calyx is inferior, and consists of two ovate, concave, obtuse, equal leaves that are deciduous, or drop on the expanding of the petals; which are four in number, roundish, spreading, large, somewhat undulated and white, in the wild specimens bluish-white, with a broad violet spot at the base of each petal. The filaments are very numerous, capillary, much shorter than the corolla, and furnished with erect, oblong, obtuse, compressed anthers. The germen as well as the capsule is nearly globular, smooth, sometimes furrowed, and crowned with a stigma, of eight, ten or more rays, with a broad, thin, deflexed margin. The capsule is globular, smooth, from two to four inches in diameter, a little compressed at the top and bottom, of one-cell, divided into several marginal cells, and surmounted with the persistent stigma. The seeds are very numerous, small white, or grey, kidney-shaped, and when ripe escape, by the valvular openings under the stem; they are oily, sweet, nutritious, and void of any narcotic power.

"Two kinds of opium are found in commerce, distinguished by the names of Turkey and East India opium. The Turkey opium is a solid, compact, perfectly transparent substance, of moderate specific gravity, possessing a considerable degree of tenacity, yet somewhat brittle; if half cut through, the section dense and a little shining; of a dark brown colour, becoming softer by the heat of the fingers, with difficulty reduced to powder, unless in the cold, after having been long dried in small pieces. Powder of a light brown, and readily plastic when baked together, when moistened marking on paper a light brown interrupted streak, scarcely colouring the saliva when chewed, at least only tinging it of a greenish colour, and rendering it frothy, exciting at first a nauseous bitter taste, which soon becomes acrid with some degree of warmth, and having a peculiar disagreeable smell. The best kind of opium is in flat pieces; and besides the large leaves in which they are enveloped they are covered with reddish capsules of a species of rumex used in packing it. The round masses which have none of the capsules adhering to them are evidently inferior in quality. Opium is bad if it is soft or friable, mixed with any impurities, have an intensely dark or blackish

colour, a weak smell, a sweetish taste, or draw upon paper a brown continuous streak. The East Indian opium has much less consistence, being sometimes not thicker than tar, and always ductile. Its colour is much darker, its taste more nauseous and less bitter, and its smell rather empyreumatic. When imported it is considerably cheaper than Turkey opium, and is supposed to be only half the strength. One eighth of the weight is allowed for the enormous quantity of leaves with which it is enveloped. In the East Indies when opium is not good enough to bring a certain price, it is destroyed under the inspection of public officers. No opium of this kind is brought to Europe. Mr. Ker relates, that at Bahar it is frequently adulterated with cow dung, the extract of the poppy produced by boiling and various other substances. In Malava it is mixed with oil of Sésamun, which is often one half of the mass ; ashes and dried leaves of the plant are also used. It is also adulterated with the aqueous extract of the capsules ; the extracts of Glaucium lùteum, Lactùca virôsa, and Glycyrrhìza glàbra, and sometimes with gum arabic, tragacanth, aloes, and many other articles."

DON'S GENERAL SYSTEM OF GARDENING.

The following is an extract from a Lecture delivered by Dr. Sigmond at the Medico-Botanical Society, on Opium;

"It is a subject," he said, "of vast importance to the commerce of the country, to a great nation in the Eastern world, and indeed to mankind at large. The poppy is indigenous and grows spontaneously in a large tract of Asia, but there is a farm, the *Afiouru Hasa Hissar*, where it is cultivated with great care. At particular seasons of the year incisions are made, and the opium collected with the knife, and thrown into gourds or basins, where it undergoes fermentation — a process which is not absolutely necessary, but is considered important. Description at length of this drug, its management and growth, with other particulars, have been given by a recent French traveller—Texier ; but his accounts furnish very little more information than was furnished to the world many years ago by Sir John Chardin, an English traveller. Though the chewing and swallowing of opium are known to have been practised many centuries ago, it is only since the year 1716 that we have become acquainted with the marvellous stories which have been repeated of the extraordinary excitement produced by opium—an excitement totally different from that caused by vinous and alcoholic drinks. Free use of wine and spirits is followed by a high degree of irritation ; but the use of opium by calmness and quiescence. There is no ferocity or violence, like that which succeeds the drinking of brandy to excess ; nor any of that absolute dejection which is produced by whiskey and gin. It is, however, succeeded by a collapse, or re-action, which developes itself in imbecility, a loathing of food, and a repugnance to all the ordinary occupations of life. A grain of opium is a medicinal dose : but the opium-eater is able to increase his quantity until 200 or 300 grains are swallowed daily. The author of the *Confessions of an Opium-eater* admitted that he had taken 320 grains at a time. At the opium shops in Constantinople the drug is administered in pills rolled up by the *merchand*, who knows his customers so well that he can vary the size of the pill to meet their respective appetites. The "patient" reclines on a sofa, takes a glass of water to wash down the pill, and in a few moments those ecstatic dreams and chimerical scenes to which they are accustomed ensue. Sometimes the person makes his way home assuming various grotesque attitudes, being followed by shouts of derision by a mob of boys ; or he recites elegant passages of poetry, and generally becomes very eloquent. In fact, the use of opium is said to be so inspiring, that some of our own public orators have had recourse to its use. The excitement having subsided, a stupor, or sopor, which lasts about eight hours, comes on, which is attended by a gnawing of the stomach, but none of that nausea consequent upon the use of vinous or alcoholic drinks. The intoxication of this drug produces an utter listlessness and dislike to everything around the individual, who cannot be happy or easy until he returns to the poison again. At length the appetite for food is destroyed, the mind becomes incapable of pursuing any study, the nervous system is quite unhinged, there is a sort of *delirium tremens*, the muscles become indolent and flaccid and almost incapable of obeying volition, the body becomes deformed, the chest grows out, the ribs are crooked, one shoulder gets higher than the other, the vertebræ are displaced and sunken, the head falls on one side, and all kinds of horrible contortions and distortions take place, until death puts an end to the miserable existence of the opium-eater. Dr. Sigmond then proceeded to describe the practice of opium-smoking among the Chinese, observing that by inhalation the qualities of any substance are more rapidly and effectually infused into the system than by any other mode. The attempts which had been made to cure diseases of the lungs by inhalation had failed, however, and General Gent, who introduced the practise of smoking stramonium for asthma, fell a victim to his nostrum, and died within 24 hours after trying it. The Chinese, when he smokes opium, lies upon a couch with his head elevated, and from a long pipe, into the bowl of which has been placed some of the drug, macerated and prepared for the purpose, he takes only one whiff, and retains the smoke for a time ; then, with a skill, of which he is proud, he suffers the smoke to escape from his nostrils, ears, and eyes. The secondary effects upon the China-man are very extraordinary, but opium-smoking is attended with no delightful consequences to the natives of northern climes. The Chinese opium-smoker, on whose countenance the love of opium is written, becomes decrepit in early life, his skin appears like parchment, and if but 25 years old, he looks full twice that age, and all the results of opium-eating become his lot. The Chinese authorities, who have repeatedly forbidden the use of this poison, describe those once accustomed to it as being "totally unable to live without it; they cannot be prevailed upon by any means to relinquish it; their faces become sharp as arrows, and their heads sunk between their shoulders; the

poison falls into their innermost vitals, physic cannot cure them, and repentance comes too late." Gutzlaff, Mr. Earle, and every other traveller who has witnessed the effects of the use of opium, have made similar statements. Dr. Sigmond remarked, however, that morphia, which is obtained from this drug, when medicinally applied, and under proper directions, might be made to produce beneficial effects, not upon the lungs, but upon the nervous system, in certain states and stages of disease. He mentioned that the digestion would become so deadened by the use of opium that the stomach could take substances which, under ordinary circumstances, would destroy life. There was a man named Solyman, the corrosive sublimate eater in Constantinople, who went into a chymist's shop, and took a large quantity of that substance, which he washed down with a glass of water, and went away. The apothecary, fearing that he should be punished for poisoning a Turk, shut up shop and decamped; but, after some days, hearing nothing further of the matter, he returned; and so did his customer the next day, and repeated his dose of corrosive sublimate, without injury; such was the state of inaction to which his stomach had been reduced by the use of opium. Dr. Sigmond having recited some more of the effects of the drug, as described by M. De Quincey, in his "Confessions," concluded by referring to the edicts which had been issued by the Chinese Government for many years past against the use of it, and observed, that though at the meetings of the Medico-Botanical Society it was not to be expected that political feelings would be at all indulged in, yet it must be admitted that no government, having the welfare of a nation at heart, would witness the progress of such demoralizing practice without making efforts to check it; and he did not think himself wrong in saying, that if opium-smoking among the Chinese were continued, there could be little doubt that China would become an object of contempt and pity to the civilized world."

The Earl Stanhope remarked, that

" The debilitating and enervating effects of opium were such, that it appeared when a military expedition was about to be sent out by the Emperor of China, no less than 4,000 men from the immediate vicinity of Canton were obliged to return to their homes, having been rendered utterly unfit for service by the use of opium. It was not to be wondered that a sovereign who watched with incessant anxiety and care for the welfare of upwards of 300,000,000 of subjects should prohibit, under the strictest penalties, the importation of a drug so detrimental and destructive, alike of mind and body, among a people the most ingenious, intelligent, and industrious that ever existed, either in ancient or modern times."

The following description is from Hope's Anastasius, which although a work of fiction, contains in its descriptive scenes, correct and vivid representations of the manners of the East.

"The great mart of that deleterious drug, is the Theriakee Tchartchee. There, in elegant coffee houses, adorned with trellised awnings, the dose of delusion is measured out to each customer according to his wishes. But, lest its visitors should forget to what place they are hieing, directly facing its painted porticoes stands the great receptacle of mental imbecility, erected by Sultan Suleiman for the use of his capital. In this Tchartchee might be seen, any day, a numerous collection of those whom private sorrows have driven to public exhibition of insanity. There each reclining idiot might take his neighbour by the hand and say, "Brother, and what ailed thee, to seek so dire a cure." There did I, with the rest of its familiars, now take my habitual station in my solitary nich, like an insensible, motionless idol, sitting with sightless eyeballs, staring on vacuity. One day as I lay in less entire absence of mind than usual, under the purple vines of the porch, admiring the gold-tipped domes of the majestic Sulimanye, the appearance of an old man, with a snow-white beard, reclining on a couch beside me, caught my attention. Half plunged in stupor, he every now and then burst out into a wild laugh, occasioned by the grotesque phantasm which the ample dose he had swallowed was sending up into his brain. I sat contemplating him with mixed curiosity and dismay, when as if for a moment roused from his torpor, he took me by the hand, and fixed on my countenance his dim, vacant eyes, said in an impressive tone, "young man, thy days are yet few: take the advice of one, who, alas, has counted many. Lose no time, hie thee hence, nor cast behind one lingering look: but if thou hast not the strength, why tarry, even here? Thy journey is but half achieved. At once go on to that large mansion before thee. It is thy ultimate destination; and by thus beginning where thou must end at last, thou mayest at least save both thy time and thy money."

The people of Java are addicted, in a very remarkable degree, to excess in the use of opium. Such of the natives or slaves as have been rendered desperate by the pressure of disappointment or misfortune give themselves up entirely to the baneful indulgence, until their minds are raised to a state of frightful excitement or rather frenzy. In this state they rush forth with dreadful purposes against all by whom they think they have been wronged or offended. They run along shouting "Amok! Amok!" or "Kill! Kill!" and in their blind fury stab at every person they meet, until self-preservation obliges the people to kill them, as we kill a mad dog. This is what is termed "running a muck," and is most commonly the result of the strong propensity of the people to gambling, by which they are often deprived of all they possess in the world, and worst

loss of all, even lose their own self respect. The immediate destruction of the muck-runners is authorised by the law in Java. Pope alludes to the Javan custom in the well known lines:

> Satire's my weapon, but I'm too discreet
> To run a-muck, and tilt at all I meet.

The subjoined extract from de Quincey's Confessions of an Opium Eater, shows to what a frightful excess it is taken.

"On the Malay's departure, I presented him with a piece of opium. To him, as an Orientalist, I concluded that opium must be familiar; and the expression of his face convinced me that it was. Nevertheless, I was struck with some consternation when I saw him suddenly raise his hand to his mouth, and (in the school boy phrase) bolt the whole, divided into three peices, at one mouthful. The quantity was enough to kill three dragoons and their horses : and I felt some alarm for the poor creature, but what could be done? I had given him the opium in compassion for his solitary life, on recollecting that if he had travelled on foot from London, it must be nearly three weeks since he could have exchanged a thought with any human being. I could not think of violating the laws of hospitality, by having him seized and drenched with an emetic, and thus frightening him into a notion that we were going to sacrifice him to some English idol. No : there was clearly no help for it :—he took his leave, and for some days I felt anxious: but as I never heard of any Malay being found dead, I became convinced that he was used to opium: and that I must have done him the service I designed, by giving him one night of respite from the pains of wandering."

In many parts of India, opium is presented at visits and entertainments in the same familiar manner, as the snuff-box in Europe. There is in that country a class of persons who carry letters and run with messages through the provinces, with no other provision than a piece of opium, a bag of rice, aud a pot to draw water from the wells. These men perform journeys that would scarcely be credited in this country. In the same manner trackless deserts of the different countries between the Indus and Mediterranean are traversed by foot passengers, by the aid of this drug, with a few dates perhaps, and a piece of coarse bread. The old traveller, Sir Thomas Herbert, very well describes this use of opium. "Opium (the juice of poppy,) is of great use, there also (in Persia,) good, if taken moderately, bad, nay mortal, if beyond measure ; but by practice, they make that familiar which would kill us, so that their medicine is our poyson. They chaw it much, for it helps catarrhs, cowardice and the epilepsie, and which is admirable, some extraordinary foot-post they have, who, by continually chewing this, with some other confection, are enabled to run day and night without intermission, seeming to be in a constant dream or giddiness, seeing but not knowing whom they meet, though well acquainted, and miss not their intended places, by a strange efficacy expulsing the tedious thoughts of travel, and rarely[a] for some days deceiving the body of its reasonable rest and lodging."

Opium is one of the most useful articles in the Materia Medica, for as a narcotic, an anodyne, and an antispasmodic it is probably unrivalled. It is prescribed in agues, in typhus fevers, dysentery, diarrhæa, tetanus, and in a great variety of diseases, where pain or watchfulness is a prominent symptom. One of the greatest improvements in modern practice is the use of opium in inflammation, when many of the symptoms continue after repeated blood-letting. In ordinary cases, the dose of opium is from one to two grains at bed time, but in urgent maladies much larger quantities have been given with advantage. The inexperienced, however, should not rashly tamper with so dangerous a drug. Many infants lose their lives every year from the administration of Godfrey's Cordial, and other nostrums containing opium.

In skilful hands opium and its fluid preparations have proved of service when used externally, in the shape of ointment or liniment.

[a] Rarely—Wonderfully.

Portulaca Thellusonia.

PORTULACA THELLUSONII.—THELLUSON'S PORTULACA.

CLASS XI. DODECANDRIA.——ORDER I. MONOGYNIA.

NATURAL ORDER, PORTULACEÆ.

STEM annual, or at most biennial, round, branched, smooth, from about one foot to a foot and a half high, and more or less of a deep pink colour. Leaves alternate, fleshy, somewhat cylindrical, smooth, about an inch long, having in the axils tufts of long white filamentous hairs. Floral leaves numerous, arranged in the form of a whorl, and in length and form similar to those of the stem. Flowers one or more at the apex of the branches. Calyx leaves two, ovate, acute, skinny, about three lines long, externally of a pinky colour. Corolla about two inches and a half in diameter, of a most brilliant crimson colour, with a yellow star in the centre, with blotches about the star of a still darker crimson. Petals five, ovate, obtuse, concave, two-lobed, having the margins recurved. Stamens numerous, of a dark purple colour, smooth, shorter than the style. Anthers round. Pollen yellow, roundish. Style longer than the stamens, of a lightish purple colour, increasing in size from the base upwards, smooth. Stigma five-cleft, divisions more or less recurved, the under side smooth, the upper side strongly pubescent. Ovarium roundish, five or six angled, one-celled ovaria numerous, rather reniform, granulose, arranged round a central columella, on a placenta.

Popular and geographical notice. This is a truly brilliant plant, and when in perfection, its crimson flowers are dazzling to the eye; as an annual (or little more) it is an attractive addition to the stove. At first this plant was considered, by Dr. Lindley, as a hybrid between Portulaca grandiflora, and Portulaca Gilliesii, but subsequent observation has convinced Dr. Lindley that it is a true species, and distinct from its congeners by its two-lobed petals. Its native country is not stated by the above author, who first described it in the Botanical Register, for 1839, but most probably it is a native of tropical America, as that country contains most of the species of the genus, few being found in the temperate or warm parts of the old world.

Introduction; where grown; culture. This plant, according to Dr. Lindley, was sent from Florence to the London Horticultural Society, by Lord Rendlesham. The genus may be easily propagated by cuttings, and the species Portulaca Gilliesii, grandiflora, and the one now figured, may be rapidly increased by the leaves, which, if suffered to remain on the soil of the pot after they have fallen, will soon strike root, and, in a short time, produce vigorous plants. The soil should be peat, loam and sand.

For the following long, but agreeable quotation, we are indebted to William Howitt's Work on the Seasons.

"Autumn is dark on the mountains; grey mist rests on the hills. The whirlwind is heard on the heath. Dark rolls the river through the narrow plain. The leaves whirl round with the wind, and strew the grave of the dead." I commence this month with a quotation from a bard who, more than all others, abounds in that wild and sombre imagery congenial to the season. Ossian is a book to be read amid the gloomy silence, or the loud gusty winds of November. There is an ancient dwelling, in a sylvan and out-of-the-world part of the country, which I frequent about as often as there are months in the year. In the summer it is surrounded by out-of-doors delights—woods, green fields, sweet songs, and all the pleasantness of flowers, breezes, and sunshine, which tempt me to loiter among them; but in the autumnal and wintry months, I habitually cast my eyes upon a small recess, filled with books, and amongst them, upon Ossian; and if I remember any hours of peculiar enjoyment, I do those thus occupied. The days and feelings of my boyhood are at once brought back again. I connect the scenes and the heroes of the "Voice of Cona," in some mysterious manner with the memory of those with whom I was wont to admire them; and am snatched from a world of cold calculation and selfishness, in which we all too willingly participate, to one of glory and generosity. We are often asked wherein consists the peculiar charm of Ossian. It is in the graceful delicacy and refined affection of his female characters; the reckless bravery, lofty sentiment, and generous warmth of his warriors, and the wildness of the scenery in which they dwell, We are delighted to find his lovely and noble beings on their rude heaths, or in their rude halls, exhibiting a poetical refinement of mind far transcending the tone of modern society, with all the beautiful set-off of the simplicity of ancient manners. And then, what a pathos is in their sorrows! The harp of Ossian is truly a "harp of sorrow." It breathes perpetually of melancholy tenderness. It is the voice of age lamenting over departed glory—over beauty and strength cut down in their prime; and it comes to us from the dimness of antiquity, and from a land of hills and woods, of mists and meteors,—from the heath of mossy and grey stones, the roaring

of mountain-streams, the blasted tree, the withered leaves, and the thistle's beard, that flies on the wind of autumn. Am I told that it is merely a pleasant, modern fiction? What then? If so, it is one of the pleasantest fictions that ever were wrought; and the man who made it, one of the happiest geniuses. For years did he toil to acquire the art and the name of a poet; but in vain. His conceptions were meagre, his style monotonous and common-place; and through the multitude of verses which he has left, we look in vain for aught which might justify the manufacture of them: but, in a happy hour, he burst at once into a most original style of poetry—into a language which shows not *symptoms* of feeling, but melts and glows with it into poetic imagery; which is not scattered sparingly and painfully, but with a full, a free, and an unwearied hand. If this be true, it is wonderful; but I shall choose not to believe it true. I shall choose to think of Ossian as the ancient and veritable bard, and Macpherson as the fortunate fellow who found his scattered lays, and who perhaps added links and *amendments* (to use the word in a parliamentary sense) of his own. Whatever be the opinion of fickle fashion, it is a book pre-eminently fitted for the November fire-side; unrivalled in graphic touches which bring the character of the season before you, and serve to touch the heart with an unworldly tenderness,—a boon of no little consequence in these money-getting and artificial days. We have not the Alpine glooms and lonely majesty of Ossian's hilly land; but we are now surrounded by precisely the melancholy images in which he delights. We are in a month of darkness, storms, and mists; of the whirling away of the withered leaves, and the introduction to complete winter. Rain, hail, and wind chase each other over the fields and amongst the woods in rapid alterations. The flowers are gone; the long grass stands amongst the woodland thickets withered, bleached, and sere; the fern is red and shrivelled, amongst the green gorse and broom; the plants, which waved their broad white umbels to the summer breeze, like skeleton-trophies of death, rattle their dry and hollow kexes to the autumnal winds. The brooks are brimful; the rivers, turbid and covered with masses of foam, hurry on in angry strength, or pour their waters over the champaign. Our very gardens are sad, damp, and desolate. Their floral splendours are dead; naked stems and decaying leaves have taken the place of verdure. The walks are unkempt and uninviting: and as these summer friends of ours are no longer affluent and of flourishing estate, we, of course, desert them.

The country presents, in its silence and gloom, a ghastly scene to those accustomed to towns and dissipation. To them there is something frightful in its solitude; yet, to the reflective mind it is, and has been at all times grateful. In its sternest moods, it presents solemn thoughts, and awakens solemn feelings. Great and philosophic minds have in all ages borne but one testimony to the charms of its quietude. In its profound repose the mourner seeks to indulge the passion of grief; to it the projector of some great work in art or literature flies to mature his labour, and, while hidden from all eyes, to achieve that which shall make his name familiar to all ears; and to the poet, what is more affluent of imaginative stimulus and precious suggestions than strolls through wood-walks, mountain-glens, and along wild sea-coasts, at this season? The universal stillness is felt through the whole soul. Every object is exaggerated, and yet recommended to the eye through the media of gloom and mist; and while the eye, unseconded by mind, would discern nothing but dreariness, he finds something congenial to the loftiest moods of his spirit, and is often led into strains which, though solemn, are anything but sad.

Fieldfares and redwings will be generally seen this month. Sometimes they quit their northern regions as early as October, if the season be very severe; but more frequently they make their first appearance here in this month. If the weather be mild, they will be heard, as they sit in flocks upon the trees, warbling in concert very cheerfully in the same manner as before their departure in spring. Fine days will occasionally peep out so spring-like, that the sky-larks attempt their flights, and sing merrily; but, perhaps, the very next morning shows a landscape of frost and snow.

I saw the woods and fields at close of day
A variegated show; the meadows green,
Though faded, and the lands where lately waved
The golden harvest, of a mellow brown,
Upturned so lately by the peaceful share.
I saw, far off, the weedy fallow smile
With verdure not unprofitable, grazed
By flocks, fast feeding, and selecting each
His favourite herb; while all the leafless groves
That skirt the horizon wore a sable hue,
Scarce noticed in the kindred dusk of eve.
To-morrow brings a change, a total change,
Which even now, though silently performed,
And slowly, and by most unfelt, the face
Of universal nature undergoes.
Fast falls the fleecy shower; the downy flakes
Descending, and with never-ceasing lapse
Softly alighting upon all below,
Assimilate all objects. Earth receives
Gladly the thickening mantle, and the green
And tender blade, that feared the chilling blast,
Escapes unhurt beneath so warm a veil. COWPER.

The world, says Leigh Hunt, never feels so cheerless, as when it is undergoing mists and fogs. As long as there are objects to look at, it is hard if we cannot find something to entertain our thoughts; but when the world itself is shut out from our observation; when the same mists, that shut it out, come clinging round about us with cold; and when we think what the poor are likely to suffer from the approaching winter, we seem to feel, not only that we are dreary, but that we ought to be so.

Primula Sinensis

PRIMULA SINENSIS.—CHINESE PRIMROSE.

CLASS, PENTANDRIA.—ORDER, MONOGYNIA.

NATURAL ORDER, PRIMULACEÆ.—THE PRIMROSE TRIBE.

PRIMULA is derived from the Latin Primus, first, from its early flowering; hence its English name also, Prime rose, now contracted to Primrose.—Sinensis, from Sinæ, the name of an ancient people, who are supposed to have inhabited that part of the Chinese Empire now called Cochin China. This pretty plant was first taken notice of by the Horticultural Society, in the year 1819, when a drawing of it was received from John Reeves, Esq. a corresponding member, residing at Canton. Subsequently a plant, and seeds also, were sent off by him to the Society; the plant perished during its passage, and the seeds did not vegetate. Since that period it has been introduced by Captain Rawes. This beautiful acquisition to our green-houses was received from China, and first cultivated with success in this country by Thomas C. Palmer, Esq. of Bromley in Kent.

Its manner of flowering is particularly elegant, for out of a simple umbel or head of flowers, rises a distinct scape or stalk, supporting a second umbel, and from this is produced a third, and sometimes a fourth, by which peculiarity, and its free increase of flowering side shoots, it remains in bloom during the greater part of the year, but is in its greatest beauty in the latter part of autumn, winter, and spring. Thus, with a few of our vegetable favourites we may still contrive to ornament our vases and rooms with a variety of forms, beautiful tints, and delightful perfumes, thus enlivening the dreary months of winter. The Chinese Primrose may be considered a half hardy plant, as it has occasionally stood our winters in the open air. It may be propagated very readily by offsets, and flourishes exceedingly in a pot of compost, made with equal parts of peat, rich loam, and sand, or it may be planted in a warm dry border of light soil, and have the protection of a hand glass during severe frost. Seeds are produced very freely by the Primula Sinensis, and from them young plants may be propagated in abundance, and with little trouble. They should be sown as early as March, in pots of light rich earth, placed in a hot-bed and the young plants when large enough, should be potted singly, and be gradually inured to the open air, but they will require occasional shade in the summer. The protection of the cold frame is necessary for them during the first winter of their growth, and in April, part may be removed to dry parts of the borders for flowering, and part may be retained in pots, as portable summer or winter ornaments. They are perennial plants, and grow from six to twelve inches high—should be well watered, but not over the plant, as it is apt to rot at the crown. The whole of the Primrose tribe rank among the most esteemed objects of culture.

Flowers, the joy of nature, have always been the symbols or representatives of joy. It is evident that these in particular are formed to please mankind, for no eyes but his can enjoy their beauties. Animals never seem to be affected with pleasure, when they behold them, whereas, man amidst a crowd of objects and riches that surround him, distinguishes and pursues the flowers with a peculiar complaisance.

Bring flowers, young flowers, for the festal board,
To wreathe the cup ere the wine is pour'd;
Bring flowers! they are springing in wood and vale,
Their breath floats out on the southern gale,
And the touch of the sun-beam hath waked the rose,
To deck the hall where the bright wine flows.

Bring flowers to strew in the conqueror's path—
He hath shaken thrones with his stormy wrath!
He comes with the spoils of nations back,
The vines lie crush'd in his chariot's track,
The turf looks red where he won the day—
Bring flowers to die in the conqueror's way!

Bring flowers to the captive's lonely cell,
They have tales of the joyous woods to tell;
Of the free blue streams, and the glowing sky,
And the bright world shut from his languid eye;
They will bear him a thought of the sunny hours,
And a dream of his youth—bring him flowers, wild flowers.

Bring flowers, fresh flowers, for the bride to wear!
They were born to blush in her shining hair.
She is leaving the home of her childhood's mirth,
She hath bid farewell to her father's hearth,
Her place is now by another's side—
Bring flowers for the locks of the fair young bride!

Bring flowers, pale flowers, o'er the bier to shed,
A crown for the brow of the early dead!
For this through its leaves hath the white rose burst,
For this in the woods was the violet nurs'd!
Though they smile in vain for what once was ours,
They are love's last gift—bring ye flowers, pale flowers.

Mrs. HEMANS.

Quassia amara

QUASSIA AMARA.—BITTER QUASSIA.

CLASS X. DECANDRIA.—ORDER V. MONOGYNIA.

NATURAL ORDER, SIMARUBACEÆ.—THE QUASSIA TRIBE.

THIS beautiful shrub is a native of Surinam, and was introduced in 1790, by Mr. Alexander Anderson, to the royal garden at Kew, where it blossoms pretty freely, and continues flowering great part of the summer. It is the true officinal Quassia, but being very rare, and of small bulk, its place is usually supplied by the Quassia *excelsa*, which is imported in considerable quantities, not only for medical purposes, but as a substitute for hops. Willdenow, speaking of this plant, says, "Quassia *amara* est planta rarissima; lignum amaritie reliquis palmam præripit. Lignum quassiæ venale non ex hoc frutice venit; colligitur a quassia excelsa, quæ minus amara."

The Bitter Quassia is a shrub rather than a tree, is branched, and covered with an ash-coloured bark. The leaves are alternate, consisting of two pairs of leaflets, with a terminal one; they are elliptic-lanceolate, entire, veiny, very smooth, sessile, two or three inches in length, and of a deep green colour; the common footstalk is linear, articulated at the insertion of each pair of leaflets, and winged, or edged, on each side, with a leafy membrane, which gradually expands towards the base of each pair. The flowers are all hermaphrodite, of a bright scarlet colour, and terminate the branches in long spikes, drooping one way; the bracteas, or floral leaves, are lanceolate, reflexed, coloured, and placed alternately upon the common peduncle. The calyx is small, persistent, and five-toothed. The corolla consists of five lanceolate, equal petals, and is never fully expanded; but the petals, as Mr. Curtis remarks, being twisted spirally, curl round one another, and open in an irregular manner. At the base of the corolla is placed the nectary, which consists of five roundish, coloured scales; the filaments are ten, slender, somewhat longer than the corolla, and crowned with simple anthers, placed transversely; the receptacle is fleshy, and orbicular; the germen is ovate, five-parted, supporting a slender style, longer than the stamens, and terminated by an awl shaped stigma.

The generic name of Quassia, was originally given by Linnæus to this species, in honour of Quassi, a negro at Surinam, who discovered the virtues of the wood, in curing the malignant fevers of that country. In consequence of a valuable consideration, this secret was disclosed to his patron, Governor Dalbergh, who sent specimens of the wood to Stockholm, in the year 1756; and since that time it became known in Europe, particularly by means of a Dissertation, printed in the Amœnitates Academicæ, first published in 1763.

QUALITIES.—The roots, bark, and wood of this tree, as its trivial name implies, are all intensely bitter; and it is observed, that the leaves, flowers, and other parts of the plant, possess similar qualities.

The medicinal virtues ascribed to *Quássia* are those of a tonic, stomachic, antiseptic, and febrifuge; it has been found very effectual in restoring the tone of the stomach, producing appetite for food, assisting digestion, and removing the inconveniences common to a sedentary life. Dr. Lettsom observes, that in hysterical atony, the *Quássia* affords more vigour and relief to the system than the Peruvian bark, especially when united with the *vitriolum album*, and still more with the aid of some absorbent. In dyspepsia, arising from hard drinking, and also in diarrhœas, he exhibited the *Quássia* with great success. Although he does not concur in opinion with Linnæus, who says, "me quidem judice chinchinam longe superat," yet he has met with several instances of low remittent and nervous fevers, the symptoms of which the bark uniformly aggravated, though administered in intermissions the most favourable to its success, in which *Quássia* or Snake-root was successfully substituted. Dr. Cullen says, (Mat. med. vol. 2. p. 174.) "I believe *Quássia* to be an excellent bitter, and that it will do all that any pure and simple bitter can do; but our experience of it in this country does not lead us to think that it will do more; and the extraordinary commendations given, are to be ascribed to the partiality so often shewn to new medicines." It is said to have been given, combined with nitric acid, with evident benefit in typhus. It may be given in infusion or decoction, which is the best form of administering it; or in pills, made from the watery extract. The infusion is prepared by macerating for two hours, in a lightly covered vessel, a scruple of quassia-wood, chipped, in half a pint of boiling water, and straining it. In hysteria this may be combined with purgatives and tincture of valerian; in atonic gout, with aromatics; and in dyspeptic affections with chalybeates, sulphate of zinc, or mineral acids. The dose is from f. ʒ j. to f. ʒ iij. given twice or thrice a-day. The tincture is prepared by digesting for seven days an ounce of chips of quassia-wood in two pints of proof spirit, and then straining. This may be used in the same cases as the infusion. It is asserted that the brewers have, of late years, used quassia-wood instead of hops.

Beer made with it certainly does not keep, says Thomson, but soon becomes muddy and flat, has a mawkish taste, and runs into the acetous fermentation. It is consequently less nutritious and wholesome than that which is properly hopped. (Woodv. mat. med. Thomson's Lond. disp.) It subjects those brewers who employ it to a heavy penalty. Quassia-wood evidently has a narcotic power, from its being used to poison flies.

Every month, says William Howitt, like a good servant, brings its own character with it. This is a circumstance which, the more I have studied the Seasons, the more I have been led to admire. Artificial as the division of the months may be deemed by some, it is so much founded in nature, that no sooner comes in a new one, than we generally have a new species of weather, and that instantaneously. This curious fact is more particularly conspicuous in the earlier months, there being greater contrast in them. In comes January,—and let the weather be what it might before, immediately sets in severe cold and frost; in February, wet—wet—wet; which, the moment March enters, ceases—and lo! instead—even on the very first of the month, there is a dry chill air, with breaks of sunshine stealing here and there over the landscape. The clouds above fly about with a brisker motion, and the paths under our feet, which yesterday were intolerably miry, become at once solid and dry. The change is surprising. Twelve hours of March air will dry the surface of the earth almost to dustiness, even though no sunshine should be seen; and "a peck of March dust is worth a king's ransom," says the old proverb, which we may suppose means, that the drying property of March is invaluable, removing the superabundant humidity, and enabling the husbandman to get in his seeds—the hope of summer produce. So speedily does the mire of winter vanish in this month, that country people, who connect their adages, which though significant are not literally true, with something which makes them partially so, say, "The rooks have picked up all the dirt," because the rooks are now busily employed in building their nests, and use mire to line them, as do magpies too at this period; who place their thorny halls on the tops of the yet leafless trees, objects conspicuous but secure.

March is a rude, and sometimes boisterous month, possessing many of the characteristics of winter; yet awakening sensations perhaps more delicious than the two following spring months, for it gives us the first announcement and taste of spring. What can equal the delight of our hearts at the very first glimpse of spring—the first springing of buds and green herbs! It is like a new life infused into our bosoms. A spirit of tenderness, a burst of freshness and luxury of feeling, possesses us: and let fifty springs have broken upon us, this joy, unlike many joys of time, is not an atom impaired. Are we not young? Are we not boys? Do we not break, by the power of awakened thoughts, into all the rapturous scenes of all our happier years? There is something in the freshness of the soil—in the mossy bank—the balmy air—the voices of birds—the early and delicious flowers, that we have seen and felt *only* in *childhood* and *spring*.

There are frequently mornings in March, when a lover of nature may enjoy, in a stroll, sensations not to be exceeded, or perhaps equalled, by any thing which the full glory of summer can awaken:—mornings which tempt us to cast the memory of winter, or the fear of its return, out of our thoughts. The air is mild and balmy, with, now and then, a cool gush by no means unpleasant, but, on the contrary, contributing towards that cheering and peculiar feeling which we experience only in spring. The sky is clear: the sun flings abroad not only a gladdening splendour, but an almost summer glow. The world seems suddenly aroused to hope and enjoyment.

In the fields, labourers are plashing and trimming the hedges, and in all directions are teams at plough. You smell the wholesome, and I may truly say, aromatic soil, as it is turned up to the sun, brown and rich, the whole country over. It is delightful, as you pass along deep hollow lanes, or are hidden in copses, to hear the tinkling gears of the horses, and the clear voices of the lads calling to them. It is not less pleasant to catch the busy caw of the rookery, and the first meek cry of the young lambs. The hares are hopping about the fields, the excitement of the season overcoming their habitual timidity. The bees are revelling in the yellow catkins of the sallow. The harmless English snake is seen again curled up, like a little coil of rope, with its head in the centre, on sunny green banks. The woods, though yet unadorned with their leafy garniture, are beautiful to look on;—they seem flushed with life. Their boughs are of a clear and glossy lead colour, and the tree-tops are rich with the vigorous hues of brown, red, and purple; and, if you plunge into their solitudes, there are symptoms of revivification under your feet—the springing mercury and green blades of the blue-bells—and perhaps above you the early nest of the missel-thrush, perched between the boughs of a young oak, to tinge your thoughts with the anticipation of summer. These are mornings not to be neglected by the lover of Nature, and if not neglected, then not forgotten; for they will stir the springs of memory, and make us live over again, times and seasons that we cannot, for the pleasure and purity of our spirits, live over too much.

a

b

c

Cochlearia Armoracia.

COCHLEARIA ARMORACIA.—HORSE RADISH.

Class XV. TETRADYNAMIA.——Order I. SILICULOSA.

Natural Order, CRUCIFERA.—THE CRUCIFEROUS TRIBE.

Fig. (*a*) represents a flower, with the calyx and petals removed; (*b*) the germen; (*c*) the pod.

Horse-radish is a perennial plant, growing naturally by the sides of ditches, on the banks of rivers, and in waste grounds, from the refuse of gardens. It has long been received into our materia medica, and was cultivated in Britain in the time of Gerard, who says, "Horse-radish for the most part groweth, and is planted in gardens, yet have I found it wild in sundrie places, as at Namptwich in Cheshire, in a place called the Milne Eye, and also at a small village near London, called Hogsdon, in the field next vnto a farm house, leading to Kingsland, where my verie good friend Master Bredwell, a practitioner in physick, a learned and diligent sercher of symples, and Master VViliam Martin, one of the Fellowship of Barbers and Chirurgians, my deere and louing friende, in company with him, found it, and gaue me knowledge of the place where it flourisheth to this day." The specimen from which our figure was taken, grew by the side of the Thames, between the Red-House, Battersea, and Putney Bridge, where it was also found many years ago by Sir J. E. Smith, and figured in "English Botany," t. 2223. It flowers in June; but rarely perfects its seeds.

The root so well known at table as an accompaniment of the roast beef of Old England, is long, white, cylindrical, strikes deep into the earth, and is extremely difficult of extirpation. The stem is round, erect, branched, and rises about two feet high. The radical leaves are petiolate, very large, dark green, oblong, obtuse, veiny, crenate, waved, and occasionally pinnatifid: those of the stem are scattered, much smaller, sessile, lanceolate, sometimes serrated or toothed, and sometimes entire. The flowers are numerous, white, and terminate the stem in dense clusters. The leaves of the calyx are ovate, concave, spreading, and deciduous; the petals obovate, twice the length of the calyx, and inserted by narrow claws. The filaments are awl-shaped, incurved, the length of the calyx, and bearing heart-shaped anthers. The germen is oblong, surmounted with a short style, and a large capitate stigma, changing into an elliptical, compressed, notched, bilocular pod, containing about four seeds in each cell, most of which prove abortive.

Culture.—The Horse-radish is generally propagated by cuttings, and requires a rich deep soil, in order to induce the plants to strike their roots freely. "Crowns," says Mr. Neill, "having about two or three inches only of root attached to them make very good plants; but cuttings of the knotty parts of the roots, provided always they be furnished with one or two buds or eyes, are often preferred, as they are to be planted entirely under the soil. They are generally planted in February or March, in lines, leaving a foot and a half between each line. The sets are placed at the depth of at least a foot; if the soil be light fifteen inches is not too deep. The roots are not dug for use till the second year; and they are raised only when wanted, the pungent quality escaping rapidly as the root dries."

Qualities.—The root has a pungent odour, and a warm acrid taste, with a degree of sweetness. Both water and alcohol extract its virtues. By drying, it loses all its acrimony, becoming at first sweetish, and afterwards nearly insipid; if kept in a cool place, covered with sand, it retains its pungency for a long time. It yields, by distillation with water, a pale yellow-coloured, acrid, pungent, essential oil. According to Einhoff, the distilled watery liquid yields traces of sulphur.

Medical Properties and Uses.—The use of the scraped root as a warm pungent condiment to various kinds of animal food, and also to give a zest to winter salads, is well known. As an article of the materia medica its effects much resemble those of mustard-seed,but it is somewhat more powerful. Infused in water, and received into the stomach, it acts as a stimulant and sudorific, and is occasionally employed with advantage in paralytic affections and chronic rheumatism; it has also been successfully ad-

ministered in dropsy supervening upon intermittent fever, particularly by Sydenham. This infusion, taken with large draughts of warm water, readily proves emetic, and may either be employed by itself to excite vomiting or to assist the operation of other emetics. It has also been used as a sialagogue, in paralysis of the tongue, in some obstinate cutaneous diseases, and in asthma. One drachm of the root infused in a close vessel, with four ounces of boiling water, and made into a syrup with double its weight of sugar, taken in the quantity of a teaspoonful, and swallowed leisurely, is strongly recommended by Dr. Cullen to remove hoarseness, arising from relaxation or deficient secretion of mucus. Externally it readily inflames the skin, and if its application be long continued, produces blisters. An infusion of the root in milk is recommended by Dr. Withering, as one of the safest and best cosmetics. Horse-radish may be given in doses of a drachm or more of the recent root cut into small pieces, and swallowed entire.

OFF. PREP.—Infusum Armoraciæ compositum, *L. D.*

Spiritus Armoraciæ compositus, *L. D.*

"The solar year," says a popular writer, "commences in the very depth of winter; and I open my record of its various aspects under that of its unmitigated austerity. I speak now as I intend to speak, *generally*. I describe the season not as it may be in this, or another year, but as it is in the average. December may be, I think, very justly styled the gloomiest, January the severest, and February the most cheerless month of the year. In December the days become shorter and shorter; a dense mass of vapour floats above us, wrapping the world in a constant and depressing gloom; and

Murky night soon follows hazy noon.—BLOOMFIELD.

In January this mantle of brumal sadness somewhat dissipates, as if a new year had infused new hope and vigour into the earth; light is not only more plentifully diffused, but we soon perceive its longer daily abode with us; yet, in the words of the common adage,

As the day lengthens,
The cold strengthens.

This is the month of abundant snows and all the intensity of frost. Yet winter, even in its severest forms, brings so many scenes and circumstances with it to interest the heart of the lover of Nature and of his fellow-creatures, that it never ceases to be a subject of delightful observation; and monotonous as it is frequently called, the very variety of the weather itself presents an almost endless source of novelty and beauty.

I will conclude with one suggestion; there are some respects in which there is a resemblance between our structure and that of vegetables—like us, too, they live and die; but between us there is still an immense space. Well may it be said:

"Am I but what I seem, mere flesh and blood,
A branching channel with a mazy flood?
The purple stream that through my vessels glides,
Dull and unconscious flows, like common tides;
The pipes, through which the circling juices stray,
Are not that thinking I, no more than they:
This frame, compacted with transcendant skill,
Of moving joints, obedient to my will;
Nursed from the fruitful glebe, like yonder tree,
Waxes and wastes—*I call it not mine, but me.*
New matter still the moulder'ng mass sustains;
The mansion changed, the tenant still remains;
And from the fleeting stream repaired by food,
Distinct as is the swimmer from the flood."

Yes, "there is a spirit in man, and the inspiration of the Almighty giveth him understanding." This gift constitutes him the only being, through the whole range of the visible creation, who is able to contemplate the character and works of the Almighty and Supreme Artificer. The human soul is also immortal, and capable of eternal progression; and it should be with us, our great end, in this brief and chequered life, to prepare for that which is glorious and eternal.

Chabot's Zincography 9½ Skinner Str.

Rubus Idæus

RUBUS IDÆUS.—THE COMMON RASPBERRY.

CLASS XII. ICOSANDRIA.—ORDER III. POLYGYNIA.

NATURAL ORDER. ROSACEÆ.——THE ROSE TRIBE.

THE common raspberry has a creeping root with biennial stems, 3 feet, or 4 feet high, pinnate leaves, and small white flowers. The fruit of this species, in a wild state, is crimson, and consists of numerous juicy grains beset with the permanent styles and highly fragrant, with a very deliciously sweet, and yet slightly acid, flavour when eaten. It is a native of Europe, from Norway and Sweden to Spain and Greece, in woods. It is found in Asia, on the Himalaya mountains, and in other places; in the north of Africa; according to Pursh, in America, in hedge-rows, from Canada to Pensylvania, though it has probably been introduced into that country. It is found in every part of Great Britain, and in Ireland, in the agricultural and subalpine regions, and in woods and in moist wastes. Improved varieties of it have long been cultivated in gardens, for the fruit, which is delightfully fragrant, and grateful to the palate in itself, and is used in numerous culinary and confectionary articles as well as in liqueurs. In France, raspberries are very generally eaten at table, mixed with strawberries. A very refreshing summer drink is made of them, by simply bruising them in water, and adding sugar. They enter into the composition of different jellies, jams, ices, syrups and ratafias; and they are preserved either alone or along with currants. Infused in spirit, they communicate a most delicious perfume to it. Fermented, either alone or mixed with currants or cherries, they make a very strong and agreeable wine; from which a very powerful spirit can be distilled. Raspberry wine was formerly much used in Poland; the fruit being there abundant in the woods. In Russia, a mixture of raspberries and honey with water, fermented, makes a delicious hydromel.

PROPAGATION AND CULTURE.—The raspberry requires a vegetable soil, rather moist, soft and not very deep, because most of the roots like those of all other plants that throw up numerous suckers, keep near the surface; and the situation should be shaded, rather than fully exposed to the meridian sun. In a wild state, it is almost always found more or less shaded by trees, but not under their drip; and in woods, the situation of which is rather low and moist, than hilly and rocky or dry. The roots belong to that description which is called travelling; that is, the suckers extend themselves all round the central plant, so as every year to come up in fresh soil. Hence, as Miller observes, a raspberry plantation requires to be renewed every five or six years. The raspberry, for this reason, has been considered as a good example of the doctrine of the excretion of plants first broached by Brugmann, afterwards explained in detail by De Candolle, and subsequently elucidated, by various experiments, by M. Macaire. The raspberry, in a wild state, is continually changing its situation; and in a state of culture, it requires to be frequently taken up, and replanted in a fresh soil.

All the varieties, says Mr. Don, will succeed in any common mould, trenched about two feet deep, and sufficiently manured; but the soil in which the *raspberry* bush prospers most, and bears the finest fruit is in a light rich loam. Allot the main crop a free exposure to the sun, that the berries may ripen in perfection. Be careful to favour the double bearers with a dry soil, and a sheltered sunny situation to give the second crop every aid in coming to maturity. When *raspberries* are cultivated on a large scale it is best to keep them in plantations by themselves. Set them in rows from 4 to 6 feet asunder, as the bushes are of the smaller or larger kinds, and by 3 or 4 feet in the row. Scattered bushes may either occupy a small row lengthwise along the back part of a border, or stand-stools, at 10 or 15 feet distance. Select sorts are frequently trained against walls, stakes, or espaliers from the most sunny to the most shady aspect, for early and late fruit of improved growth and flavour. Neill says, "the *raspberry* bush grows freely in any good garden soil; but it is the better for being slightly moist. Although the place be inclosed by trees, and even

shaded, the plant succeeds. In an enclosed, and well sheltered quarter, with rather a damp soil, containing a proportion of peat moss, we have seen very great crops of large and well flavoured berries produced; for example at Melville house, the seat of the Earl of Leven, in Fifeshire." Haynes also recommends well manured bog earth, and a situation naturally or artificially shaded.

Raspberry bushes are in their prime about the third or fourth year, and if well managed, continue in perfection 5 or 6 years; after which they are apt to decline in growth and the fruit to become small, so that a successive plantation should be provided in time. Select new plants from vigorous shoots, in full perfection as to bearing.

Keep them free from weeds during the summer by hoeing between the rows, at the same time loosen the earth about the plants: the plants if tolerably strong, will both yield a moderate crop the first season, and supply young stems for bearing in greater plenty and perfection the following season, and so from year to year this should be repeated. As the plant gets established, let all the straggling suckers between the rows, or from the extreme roots of single shoots, be cleared out by hoeing, or twisted off to admit the air and sun freely to the fruit. The fruit of the *raspberry* may be obtained of a very large size, other circumstances being favourable, by destroying the suckers; but in this way the plant being destroyed, a double plantation is wanted, the one to give only suckers, the other fruit.

"The fruit of the different varieties comes in from the end of June or July till October or later. As it ripens it should be timely gathered for immediate use, because when fully ripe it will not keep above two or three days before it moulds or becomes maggoty, and unfit to be used."—Abercrombie.

Raspberries are dried in ovens for winter use. Raspberry vinegar is well known both in France and England, and independently of its agreeableness when mixed with water, as a summer drink, it is excellent as a febrifuge. In England, raspberries are principally used for making rasbperry jam and raspberry vinegar; and for pies and puddings, in combination with currants and cherries. They are excellent eaten with milk or cream, with the addition of sugar, when fresh; and are easily preserved in jars or bottles, entire, with or without sugar, for winter use. They are reckoned very wholesome, and children are seldom, if ever, injured by eating them.

To make Raspberry wine, says John Farley, "You must with the back of a spoon, bruise the finest raspberries you can get, and strain them through a flannel bag into a stone jar. To each quart of juice put a pound of double refined sugar, then stir it well together, and cover it close. Let it stand three days, and then pour it off clear. To a quart of juice put two quarts of white wine, and then bottle it off. It will be fit for drinking in a week.

If an attempt be made to form wine from raspberries and sugar, a liquor will be produced with but little, if any, of the flavour of the fruit; but a small quantity of juice of raspberries added at the *decline* of the fermentation, or a little fresh fruit suspended in the cask at the same period, will be sufficient to communicate an excellent raspberry flavour.

"The roots of the raspberry plant are in demand by some French cooks; but we are uncertain to what use they are applied, probably in the dressing of game."

"The seeds of the raspberry are said to retain the vital principle for a very long period; and a plant in 1836, in the Horticultural Society's garden, was raised from seeds found in a barrow, or tumulus, in Wiltshire, opened in 1835; which, unless we can suppose the seeds to have been conveyed into the interior of the tumulus by insects or vermin, must have lain there many centuries."—*Loudon's Arboretum Britannicum.*

—Almighty Being,
Cause and support of all things!
————Can I view
These objects of my wonder—can I feel
These fine sensations—and not think of thee!

In the language of flowers, we perceive the Raspberry denotes remorse.

Krameria triandria.

KRAMERIA TRIANDRA.—TRIANDROUS, OR PERUVIAN KRAMERIA.

Class VI. TETRANDRIA.—Order I. MONOGYNIA.

Natural Order, POLYGALEÆ.—THE MILK-WORT TRIBE.

This species of Krameria, called by us Rhatany, and by the Spanish inhabitants Ratanhia, is the spontaneous growth of many provinces in Peru, delighting in a dry argillaceous or sandy soil, and growing on the declivities of the mountains, exposed to the intense heat of a vertical sun. It was first discovered by Don Hypolito Ruiz in 1780, in the provinces of Tarma, and Xanca; and subsequently by the same naturalist in the provinces of Huanuco, Huamalies, and Canta; it is also found in abundance in the vicinity of Lima, on the high-lands of Puelles, and other hilly districts. It flowers nearly throughout the year; but blossoms most luxuriantly in October and November. It is gathered in large quantities, and from it a beautiful extract is prepared, which, as well as the root, is imported into Portugal for improving the colour, astringency, and richness of red wine. From this use in the manufacturing of wine the Portuguese and Spanish merchants have kept its properties so concealed, that in this country the root was unknown, till the captain of a Peninsular ship mentioned these facts to Dr. Reece; which induced him to apply to some Spanish merchants for further information, who corroborated the account, with respect to a certain root being used as a colouring liquor, but were unacquainted with its name. One of them afterwards furnished Dr. Reece with a preparation, that in Portugal was known by the name of wine *colouring;* it proved to be a saturated infusion of the root in brandy; and the deep colour and richness it communicates to port wine renders it an article of great and deserved value to the manufacturer. Some of this root, and extract, forming part of a Spanish cargo, taken by our cruisers, was afterwards sold in London, and Dr. Reece was thereby enabled to enter upon an investigation of its nature and medicinal qualities; and in consequence of the facts which he established, it has become a favourite remedy, and is admitted into the list of our materia medica. Continental writers, however, on the contrary, impute the practice of colouring wine with Rhatany to the British manufacturers, and speak of its use in France and Spain merely as a styptic.

The Krameria *triandra* is an under-shrub, with very long, much branched, spreading roots, of a blackish red colour externally, red internally, and having an intensely styptic, bitter taste. The stem is procumbent, round, and divided into numerous spreading branches, which when young are white and silky, but afterwards become naked below, and acquire a black colour. The leaves are scattered, sessile, oblong-ovate, pointed; entire, white and silky on both surfaces. The flowers are terminal, solitary, and placed on short foot-stalks. The calyx consists of four lake-coloured sepals, the inferior larger than the others, sericeous externally, but internally smooth and shining; the corolla is composed of four petals, the two lateral being sessile, and the two longer ones unguiculate. The stamens are three, fleshy, inserted between the germen and the superior leaflets of the nectary; the anthers urceolate, small, terminated with a pencil of very short hairs, and perforated with two holes at the apex. The germen is ovate, supporting a red awl-shaped style, and simple stigma. The berry or drupe is dry, globose, echinated on all sides with stiff reddish hairs.

The stamens being usually four in number and of unequal lengths, the genus is referred by Sprengel, in his edition of the Linnæn System, to the class and order Didynamia Angiospermia.

Qualities and Chemical Properties.—The root, which is somewhat larger than a goose-quill, is of a ferruginous colour: and the cortical part, in which its sensible qualities predominate, is very thick, and breaks short. The ligneous part is tough, and fibrous, and somewhat mucilaginous. On being slightly masticated, the root discovers a very grateful astringency, leaving a lasting impression on the palate; and is slightly aromatic and bitter. These qualities are imparted, as well as its colouring matter, both to cold and boiling water, and to proof spirit. The tincture made with brandy approaches very nearly to the flavour of port wine. The foreign extract, which is a gum resin, is a very beautiful transparent article; and Dr. Reece informs us, that on mixing it with the foreign extract of bark, or any astringent extract, it loses its adhesive quality, and becomes "powdery," and at the same time loses its astringency. The extract

made from a decoction or infusion of the root is "powdery," and not so astringent as the powdered root, although evaporated in vacuo, or in a water-bath. Dr. Duncan asserts that the foreign extract is so similar to kino, that the difference cannot be discovered; now the former varies from the latter both in appearance and taste, being slightly bitter, and readily dissolving in the saliva in the mouth. Vogel says that Kino is charred on exposure to heat, without changing its *form*; whilst the foreign extract of rhatany previously melts and swells, and this it does when as dry as kino.

From a careful analysis it appears, 1stly, that the most efficacious part of rhatany is that which dissolves in considerable quantity in water and alcohol, and imparts to these menstrua a brown colour; 2ndly, that in prescribing a decoction, or the extract, the mineral acids should not be added; 3rdly, that the astringent principle possesses, in great part, the properties of tannin, and seems to be a modification of this immediate matter of vegetables; 4thly, that the dried root contains an astringent principle, which is a modification of tannin, gallic acid, gum, fecula and a ligneous matter; 5thly, that the ashes of rhatany contain pure lime, carbonate of lime, carbonate of magnesia, sulphate of lime, and silex; lastly, that in one hundred parts of the powder are found,

Modified tannin	40
Gum	1.5
Fecula	0.5
Woody matter	48
Gallic acid, a trace; water and loss	10
	100

M. Peschier, of Geneva, believed that he had discovered a peculiar acid in this plant, which is called the *krameric*, but his observations have not been confirmed.

Medical Properties and Uses.—Rhatany is a very valuable tonic medicine for indigestion, arising from direct debility; and for flaccid leucophlegmatic habits. The late Dr. Perceval, of Manchester, speaks highly of a solution of the foreign extract, dissolved in camphorated mixture, as a remedy in the advanced stages of typhus fever; and says that it possesses all the good qualities of port wine, and is exempt from its pernicious ingredient, alcohol. Sir Henry Halford informs us, that he is in the constant habit of prescribing it with the most marked success. It is also an excellent tonic to accompany the use of diuretics, cathartics, and absorbent stimulants in case of dropsy arising from debility; and when the different preparations of bark disagree with the stomach, it may be substituted for it with the most beneficial results. As in the case of other vegetable astringents, ipecacuanha and its preparations are incompatible with the infusion of Krameria.

Preparations.—The *extract*, which is made by inspissating the expressed juice of the root in the heat of the sun, (by the natives of South America,) possesses, in great perfection, the medicinal properties of the root, and may be taken, in the form of pills, to the extent of five or ten grains, twice a day.

Of the *powder* may be taken from ten to thirty grains.

Compound Tincture of Rhatany.

℞.—	Rad. Krameriæ Triandræ contus.	ʒiij.
	Cort. Aurantii	ʒij.
	Rad. Serpentariæ Virg.	ʒss.
	Croci Anglic.	ʒi.
	Sp. Vini Rectificat.	℔. ij.

Macera per dies duodecim, et cola.

This *compound tincture* is much recommended by the physicians of the Continent, as a pleasant and efficacious stomachic; and our own experience teaches us, that two tea-spoonsful in a little water, taken three or four times a day, will prove an admirable remedy for indigestion, and its consequences—as flatulency, heart-burn, cramp in the stomach, nervous irritability, &c.

The *simple tincture* is made with three ounces of the root to a quart of *proof* spirit; and is much used by dentists, combined with equal parts of rose-water, as a lotion to astringe the gums, and correct any unpleasant fœtor of the mouth. Equal parts of powdered Rhatany-root, orris-powder, and areca-nut charcoal, form the best tooth-powder with which we are acquainted.

Rheum Palmatum.

RHEUM PALMATUM——PALMATED RHUBARB.

CLASS IX. ENNEANDRIA.—ORDER III. TRIGYNIA.

NATURAL ORDER, POLYGONEÆ.——THE BUCK-WHEAT TRIBE.

THE palmated Rhubarb is a native of Russia, and some parts of Asia, whence the dried root is imported into this country for medicinal purposes. Several species, however, are known to furnish the drug of commerce. These grow chiefly on the declivities of the chain of mountains which stretches from the Chinese town Sini, to the late Kokonor, near Thibet. The soil here is light and sandy, and the Bucharians assert that the best grows in the shade, on the southern side of the mountains. Linnæus supposed the generic name *rheum*, to be derived from ῥέω, to flow, as expressive of its action on the liver and intestinal canal. The old name *rha*, which is still retained in composition, to designate the species *rha*-ponticum, and *rha*-barbarum, of the latter of which, indeed, the common name *rhubarb* is a corruption, was given to the plant from its being at first procured only from the banks of the *Rha*, or Volga. Ammianus Marcellinus confirms this opinion, for he says, "The *Rha* is a river, on the border of which grows a root, which bears its name, and is much renowned in medicine. (*Loudon's Encyc.*)

The root of the palmate species is large, thick, oval, branched, brown externally, and of a deep yellow colour within. The stem is erect, round, hollow, jointed, branched at top, and rises to the height of six or eight feet. The lower leaves are very large, palmated, acuminate, somewhat rugged, and stand upon long-channelled smooth petioles, grooved above and rounded at the edge, with ferruginous dots; those of the stem are placed close to the stalks, and become gradually smaller towards the summit. The flowers, which appear in May and June, are small and numerous, surrounding the stem, and collected at the extremity of the branches, forming a sort of spike. The perianth is divided into six obtuse segments; the filaments are nine, the length of the sepals, and supporting oblong anthers; the style is short, with three reflected stigmas. The ovary becomes a triangular, pointed nut, with membranaceous margins.

The common Rhubarb (Rheum *Rhaponticum*) was first cultivated by Mr. John Parkinson, in 1629, the seeds of which were sent to him by Dr. Lister, one of the king's physicians. On making trial of the roots they were found very inferior in power to those of the Rhubarb of commerce. In 1759, Dr. Boerhaave procured the seeds of Rheum *undulatum*, which is a native of China and Siberia. It was cultivated by Mr. Miller, but not very generally received as the true Rhubarb; which induced Boerhaave to procure from a merchant the seeds of the plants which produced the roots that he annually sold, and were admitted at St. Petersburgh to be the genuine medicinal Rhubarb. These seeds were soon propagated, and were discovered to produce two distinct species, namely, the Rheum *undulatum*, referred to above, and the Rheum *palmatum*, which has for some time been supposed to be the true plant, not only by botanists, but by the acknowledged authorities in the Pharmacopœias of London and Edinburgh; though the Dublin college retain the Rheum *undulatum*. The seeds of Rheum *palmatum* were first introduced into Britain in 1762, by Dr. Mounsey, who sent them from Russia; both Professor Martyn and Dr. Hope cultivated them at the same time, the former at Cambridge, and the latter at Edinburgh. It appears, however, that we are indebted to several species of Rheum for our valuable medicine, as Georgi relates that a Cossack pointed out the Rheum *undulatum* to him as the true Rhubarb; while Prof. Pallas states that in Bukharia, the *palmated* sort seems to be unknown; and that as far as he could collect from description, the species they consider as the true one is the *compactum*, the seeds of which, Mr. Miller informs us, were sent to him from St. Peterburgh, as the true Tartarian Rhubarb. The Chinese Rhubarb, called by the natives Ta Hwangor Hai-houng is cultivated chiefly in the province of Cher-see.

For the following remarks on the Rhubarb of commerce, we are indebted to an interesting paper published in the Edinburgh Philosophical Journal, by Mr. David Don, Professor of Botany, at King's College, London, &c. "Mr. Sievers, an enterprising assistant of Professor Pallas, and well known by his interesting Letters on Siberia, published in the *Nordische Beyträge*, was sent by the Empress Catharine II., purposely to try to obtain the true Rhubarb plant from its native country; and although, after travelling for seven

years in the countries adjacent to that in which it is found, he was unable to effect the object of his mission, yet he obtained sufficient information to convince him that the plant was then unknown to botanists. But it was reserved for Dr. Wallich, the zealous superintendent of the Calcutta Botanic Garden, to set this long agitated question at rest, by the transmission of seeds and dried specimens of the true Rhubarb plant to Europe. Last spring, Mr. Colebrooke received a quantity of the ripe seeds from Dr. Wallich, and presented a portion of them to Mr. Lambert, who has been so fortunate as to raise a number of plants of this valuable vegetable. The seeds were sown in pots, and, by the aid of artificial heat, soon vegetated. The young seedlings were transplanted into several pots filled with rich earth, and the pots were gradually changed as the plants increased in size. By this treatment, as might well be imagined, the young plants grew vigorously, and, at the end of autumn, the leaves were from fifteen inches to a foot in breadth, and the footstalks nine inches long, with half an inch in diameter. The plant, on examination, proved to be identical with my Rheum *australe*, from Gosaingsthan, in the Himalaya Alps. I find Dr. Wallich calls it Rheum *Emodi*, a name which I should certainly have adopted, had I been aware of it before the publication of my work. The whole plant is thickly beset with numerous small, bristle-shaped, cartilaginous points, which give it a rough feel. The leaves, are of a dull green, and the foot-stalks are red, and deeply furrowed. The native samples I have seen appear to be smaller in all their parts, and the leaves, although flowering specimens, frequently not more than three or four inches broad; the footstalks four inches long, and slender, and the flowering stem not above two feet high. It is curious to observe how well this description accords with what Sievers has given us. The Rheum *australe* appears to be peculiar to the great table lands of central Asia, between the latitudes of 31° and 40°, where it is found to flourish at an elevation of 11,000 feet above the level of the sea; and there is little doubt, therefore, of its proving perfectly hardy in our own country. Large quantities of the roots are annually collected for exportation in the Chinese provinces within the lofty range of the Himalaya. The best is that which comes by way of Russia, as greater care is taken in the selection; and on its arrival at Kiachta, within the Russian frontiers, the roots are all carefully examined, and the damaged pieces destroyed. This is the fine rhubarb of the shops, called improperly Turkey Rhubarb. We have yet to regret the want of much interesting information respecting the mode of collecting and preparing the roots, and other details interesting in a commercial point of view. The unfortunate fate of Mr. Moorcroft, whose zeal and multifarious knowledge well fitted him for a scientific traveller, has deprived us of much valuable information on this as well as on many other subjects."

CULTURE.—Since the introduction of Rheum *palmatum*, it has been largely cultivated in this country; and we are informed by the best authority, that the London market is principally supplied from Banbury. Fine specimens are worth about six shillings per pound, and resemble Turkey rhubarb in their appearance more than they do East Indian; although it is for the latter that they are principally substituted. The article sold at the herb shops under the designation, "English Rhubarb," is the produce of the R. *undulatum;* the leaf-stalks of which are used for tarts. It may be bought for nine-pence per pound, and from its want of power has caused undeserved reproach to be cast on the proper cultivated sort.

Twenty pounds of English Rhubarb,
Seven pounds of East India,
Three pounds of Turkey,

ground together, are the proportion employed by one of the most fashionable druggists at the west end of the town, to form a fine-looking article, denominated and sold as "Fine Turkey Rhubarb." Indeed, so strong is prejudice, that we have it from very good authority, that perfectly unadulterated Turkey Rhubarb, procured from Apothecaries Hall, has been rejected as bad, when attempted to be vended in a retail shop.

The Society for the Encouragement of Arts, Manufactures, and Commerce, exerted itself for many years to promote the culture of Rhubarb in this country; and medals and other rewards were voted to Sir A. Dick, Mr. Jarman, Mr. R. Davis, Jun. of Minehead, Mr. Ball, of Williton, Mr. Jones, late of Fish Street Hill, &c.

Mr. Davis recommends the seeds to be sown in a very gentle hot-bed, in March, and when the roots are about the size of a crow's quill, they should be drawn up carefully to preserve the taproot, and planted in a fine rich earth in a deep soil: if the weather should prove dry, they must be watered. When the plants are once in a growing state, all farther care and trouble are at an end, but that of keeping them free from weeds. The distance of the plants should be eight feet; and *as they disappear above seven months in*

the year, the ground may be usefully employed in many articles of gardening, from the middle of August to the beginning of April.

The seeds, however, do not require a hot-bed to make them vegetate; but if sown in the natural ground during the spring, when the weather is open, soon come up, and thrive fast. The plant delights most in a rich, light, deep soil, and warm exposure, but will thrive almost in any situation.

Mr. Jones says, that "In the culture of rhubarb, the whole difficulty consists in bringing the plants through their first season; if the weather be hot and sultry, they must be shaded, and at all events must be continually watered. For transplanting, a wet or cloudy day should be preferred; and if the weather should continue for two or three days successively, not more than four or five in a hundred will probably be lost. In a month the roots will have made fresh shoots, and new leaves will have succeeded the former, which commonly, notwithstanding all our care, will wither away. The plants may now remain till the ensuing spring, or if the summer be favourable, and the land intended for the plantation be well trenched three feet deep, it may be completed without delay. It is a good way to sow the ground with carrots; the surface by this means being preserved from weeds, and rendered finer by repeated hoeings, and the bottom kept light and open. At different periods during the summer, when the plants are of a proper size, and the weather is cloudy or showery, with a transplanter or circular spade, remove them with a ball of earth adhering, at the prescribed distances, into the midst of the carrots, destroying such as might obstruct the growth of the rhubarb; and if the weather should prove unusually hot, the foliage of the carrots will preserve the young plants from the sun till they have acquired a sufficient growth; after this it remains only to keep the plantation clear, and the trenches open."

The indispensable points are the depth and quality of the soil, which should be light, loamy, and rich, but not too much so, lest the roots should be too fibrous: it can scarcely be too dry, for more evil is to be expected from a superabundancy of moisture, than from any actual want of it. A declivity is very eligible for the plantation. When a plantation does not possess this natural advantage, narrow beds and deepened trenches are among the artificial means that should be adopted; but most situations will require some care to prevent the ill effects of water remaining on the crowns of the plants; therefore, when the seed-stalks are cut off, which ought always to be done on the withering of the radical leaves, they should be covered with mould in the form of a hillock. This will answer two good purposes, that of throwing off the rain, and keeping open the trenches, by taking the earth from them.

The Chinese get up their rhubarb in winter. Pallas says that the Tartars take up theirs in April and May; but in Bell's account, this is said to be done in autumn. Forster, in his History of voyages in the North, affirms, that the roots are dug up in winter, because they then contain the entire juice and virtue of the plant; those that are taken up in summer, being of a light spongy texture, and unfit for use. We should think, that in this country, February would be the month most fit for digging up the roots. The greatest difficulty appears to be in drying, and preserving them.

In Tartary, being thoroughly cleansed, and the smaller branches cut off, they are cut transversely into pieces of a moderate size; these are placed on long tables or boards, and turned three or four times a day, that the yellow viscid juice may incorporate with the substance of the root. If this juice be suffered to run out, the roots become light and unserviceable; and if they be not cut within five or six days after they are dug up, they become soft, and decay rapidly. Four or five days after they are cut, holes are made through them, and they are hung up to dry, exposed to the air and wind, but sheltered from the sun. Thus, in about two months, the roots are completely dried. The loss of weight is very considerable: seven loads of green roots yielding only one small horse-load of perfectly dry rhubarb.

The Chinese method is somewhat different. They skin the roots, cut them into slices, and dry them on stone slabs, under which large fires are kindled; but, as this process is not sufficient to dry them perfectly, they make a hole through them and suspend them on strings; some say exposed to the sun, while Kochin asserts that they are hung in the shade. Were we to cultivate rhubarb in this country, we should take the same preliminary steps that are practised by the Tartars, and afterwards dry the pieces in a malt-kiln, where they might be hung on strings without interfering with the barley.

From experiments made at the Bath hospital, it appears that the purgative qualities of English are scarcely so strong as Turkey or East India rhubarb, but the difference is not great. And from numerous

trials made by Dr. Parry, it appears that one of the specimens of English rhubarb was fully equal in its effects to the Turkey.

Upon the whole, if English rhubarb should be allowed to be inferior to the foreign, which is perhaps doubtful, it appears probable, that this inferiority is owing only to such circumstances as attention and industry may obviate; and that this might be done in a great measure by attending to the age of the plant when taken up, to the root being cut transversely, rasped on the outside, having the sappy parts cut out, and being quickly dried. The best specimens of the drug have generally been allowed to grow six or seven years; the roots are then very large, weighing from thirty to fifty pounds.

When it is considered that the duty on East Indian rhubarb is 2s. 6d. per pound, and that about £200,000 is paid annually for what is imported into this country, the subject is one of considerable importance, and arrested the attention of the late Mr. Salisbury of the Fulham Road; whose zeal for the improvement of domestic economy, particularly as applicable to Ireland, is well known to the philanthropic part of the community.

We have been almost wholly indebted for our materials on the cultivation of rhubarb, to an able article in Miller's Gardener's Dictionary, which was written by the late Professor Martyn; and those who are desirous to glean more information, may consult that work with pleasure and advantage.

Qualities and Chemical Properties.—The best rhubarb, termed Turkey, or Russian, is in small pieces, with a hole in the middle, made in the recent root for the purpose of drying it. The colour is a lively yellow, streaked white and red. Its texture is dense, and its powder a bright yellow. In selecting rhubarb, the pieces should be broken, and those which are of a bad colour, or exhibit appearances of decay, should be rejected. The smell of rhubarb is somewhat aromatic, and it has a nauseous, bitter, slightly astringent taste.

"Another kind, imported from China, is known by the name of East Indian rhubarb; it is in larger masses, more compact and hard, heavier, less friable, and less fine in the grain than the other, and having less of an aromatic flavour."* It is said by Dr. Kelman, to be the produce of the same plant, but that it is prepared with less care.

Medical Properties and Uses.—The medicinal properties of this valuable root are so well known, that it appears almost a work of supererogation to mention them. It is in common use as a stomachic or cathartic, according to the dose in which it is administered. As a cathartic, from one scruple to half a drachm is required for a dose: but a few grains are sufficient to excite the action of the stomach and intestines, and are often employed, when it is desirable that the food should be assisted to pass quickly from the former, or when we merely wish to increase the natural action of the latter. In these small doses, it will be found useful in hypochondriasis, jaundice, and dyspepsia; as it obviates costiveness, and by its bitter principle has a tendency to restore the tone of the digestive organs. By some it is considered to have an astringent effect, after its operation as a purgative has ceased: it is therefore recommended to be exhibited in diarrhœa; and is especially adapted for the bowel diseases of infants. It may be advantageously combined with sulphate of potash for children, or with any other of the neutral salts; and to cover its nauseous flavour, it is usual to prescribe with it a few grains of powdered cinnamon, or some aromatic water. It is also an excellent adjunct to neutral salts and calomel, rendering their operation more mild. Combined with the extract of chamomile, or gentian, a useful tonic pill is formed, to which may be added preparations of soda, when antacids are required. The tincture of rhubarb is an excellent stomachic, given with some bitter infusion; but the vulgar practice of taking it for pains in the bowels, too often increases inflammation when it exists. We had, however, ourselves, says Mr. Burnett, many years previously used the petioles of both species, which were cultivated in our garden at Laleham, and found that if grown in a damp shady soil, they were both equally palatable. But we are bound to state, that a friend of ours, whose palate is in good order, and whose botanical knowledge is very great, adopted the same plan without becoming a convert to its propriety. He declares that the astringency was so powerful, that neither he nor his family could eat it; which, if a calculation be not made of differences produced by the effects of soil, only proves the truth of the old adage: "De gustibus non est disputandum."

* Murray's *Materia Medica*, vol. i. p. 361.

Rosa muscosa?

ROSA MUSCOSA.——THE MOSS ROSE.

Class XII. ICOSANDRIA.——Order III. POLYGAMIA.

Natural Order, ROSACEÆ.——THE ROSE TRIBE.

Calyx 4-or 5 lobed, with a disk either lining the tube or surrounding the orifice; the fifth lobe next the axis. *Stamens* indefinite, arising from the calyx, just within the petals, in æstivation curved inwards, *anthers* innate, 2 celled, bursting longitudinally. *Ovaries* superior, either solitary or several, 1 celled, sometimes cohering into a plurilocular pistillum; *ovula* 2, or more, suspended, very rarely erect; *styles* lateral; *stigmata* usually simple, and emarginate on one side. *Fruit* either 1 seeded nuts, or acini, or follicles containing several seeds. *Seeds* suspended, rarely ascending. Embryo straight, with a taper short radicle pointing to the hilum, and flat cotyledons. *Albumen* usually almost obliterated when the seeds are ripe; if present, fleshy.—*Herbaceous* plants or shrubs. *Leaves* simple or compound, alternate, with 2 stipula at their base. *Calyx* and peduncles mossy. The *Moss Rose* is either red or white and always very double.

"My Love" says a popular song, "is like the red, red rose;" and a very good simile it is. The rose has ever been the emblem of youth, beauty, and freshness; and if a poet would describe the enchanting glow upon the cheek of his mistress, he speaks of the rosy flush that seems transferred from the garden to her skin. The rose too, is the emblem of pleasure, and as in this world, enjoyment is too apt to leave a sting behind, so the rose, when it withers, leaves a thorn to increase our regret for its loss:—

See for a while its garden-bed
The fragrant rose adorn;
Return—alas! the rose has fled,
Nor left aught but a thorn.——*From the Greek Anthologia.*

Nay, the thorns may be felt before the roses have withered; or, in the language of the most philosophic of Roman poets,

"*Medio de fonte leporum Surgit amari aliquid, quod in ipsis floribus angat.*"

"From the midst of the fountain of delights, there arises something bitter, to torment one amid the flowers themselves."

The transient splendour of the rose is also a fit emblem of beauty and virtue too soon called away from the world which they graced:—

Elle était de ce monde où les plus belles choses
Ont le pire destin;
Et rose elle a vécu ce que vivent les roses,
L' espace d'un matin.——Malherbe.

She belonged to this world, where the sweetest and fairest
Are ill-fortune's surest prey;
Rose she was, and she lived like a rose of the rarest,
The space of one single day.

Here is another poem more generally known, in which the rose again figures as the image of unresisting sweetness and tenderness,

The rose had been washed, just washed in a shower,
Which Mary to Anna conveyed,
The plentiful moisture encumbered the flower,
And weighed down its beautiful head.

The cups were all filled, and the leaves were all wet,
And it seemed to a fanciful view,
To weep for the buds it had left with regret
On the flourishing bush where it grew.

I hastily seized it, unfit as it was
For a nosegay so dripping and drowned,
And swung it rudely, too rudely alas!
I snapped it, it fell to the ground.

"And such,"—I exclaimed, "is the pitiless part,
Some act by the delicate mind,
Regardless of wringing and breaking a heart,
Already to sorrow resigned.

This elegant rose, had I shaken it less,
Might have bloomed with its owner awhile,
And the tear that is wiped with a little address,
May be followed perhaps by a smile."——Cowper.

In the following legend by Körner, the rose seems to be the emblem of joyous and triumphant purity. Among the earlier Christian converts was St. Dorothy, a Greek maiden, who sedulously cultivated her garden, and while blessed with a pious and child-like sportiveness, faith increased in her heart, like pure gold. One night this dream was vouchsafed to her. A bright angel descended, with three blooming roses in his radiant hand, extended them to her with a friendly look, gave her the kiss of consecration, and then flew home to heaven. When the maiden awoke, and found the roses on her bosom, she saw that the dream was from above, and her heart glowed with a holy longing to attain the heavenly garden. Two days passed away, but when the third morning burst forth, the roses began to fade.

We will give the last stanza in the original:—

Und der Engel erscheint, als der vierte graut,
Im lichten Bräutigamskleide,
Und trägt die Rosen, und trägt die Braut,
Hinauf in den Garten der Freude.

And the angel appears, as the fourth morn grows gray,
In his radiant bridal vest,
And carries the bride and the roses away,
To the garden where dwell the blest.

The resemblance of a fine complexion to the glowing hues of the rose is sufficiently striking; but the poets are less happy in the comparisons by which they would illustrate the contrast between the ruddiest part of the cheek, and its paler boundary; for the latter by no means resembles the colourless surface of the lily. The flush of health is a very different tint from snow or milk; and Virgil, when he describes the appearance of Venus to Æneas, gives us among the first signs by which she betrayed her divinity the refulgence of her rosy neck.

However, we must take the poets as we find them; and if they are not strictly accurate, where perfect accuracy was perhaps impossible, it must be owned that their errors are very agreeable.

The effect of a blush on the cheek of Lavinia is thus described by Virgil:

Indum sanguineo veluti violaverit ostro
Si quis ebur; vel mixta rubent ubi lilia multâ
Alba rosâ: tales virgo dabat ore colores.
Æneid XII. 67.

"As when the Indian ivory is stained with ruddy purple; or as white lilies grow red when mingled with the frequent rose: such were the colours suffused over the maiden's face."

When Anacreon gives a description of his absent mistress to a painter (whom, by-the-by, he calls "prince of the *rosy* art") he desires him to paint her complexion, "mingling roses with milk."

In the celebrated description of Alcina, whose smiles opened a Paradise on earth, Ariosto says

Spargeasi per la guancia delicata
Misto color di rose, e di ligustri.

"The mingled colour of roses and of privet spread itself over her cheek."

Sometimes again the freshness of the flower affords the chief point of comparison:—

——— she looks as clear
As morning roses newly washed with dew.———*Taming of the Shrew.* Act ii. Scene 1.

And Thomson says of his Lavinia,

Her form was fresher than the morning rose,
When the dew wets its leaves.

The Germans, besides the ordinary names of the months borrowed from the Latin language, have other more expressive ones derived from their own. Thus October is called *Weinmonat* or Wine-month, and the name of *Rosenmonat*, or month of roses, has been given to May and June.

Spring and summer are, of course the chief seasons for the rose:—

No gradual bloom is wanting; from the bud
First-born of Spring, to Summer's musky tribes;
Nor hyacinths, of purest virgin white,
Low-bent and blushing inward; nor jonquils,
Of potent fragrance; nor narcissus fair,
As o'er the fabled fountain hanging still;
Nor broad carnations, nor gay-spotted pinks;
Nor showered from every bush, the damask rose.
THOMSON'S SEASONS.—*Spring.*

Half in a blush of clustering roses lost,
Dew-dropping Coolness to the shade retires;
There on the verdant turf, or flowery bed,
By gelid founts and careless rills to muse. *Summer.*

Yet thanks to culture, the duration of this delightful flower is prolonged for many months; and the hot-house has made roses and frost less irreconcilable than they were in Shakespeare's time:—

And thorough this distemperature we see
The seasons alter; hoary-headed frosts
Fall in the fresh lap of the crimson rose;
And on old Hyems' chin, and icy crown,
An odorous chaplet of sweet summer buds
Is, as in mockery, set.
Midsummer Night's Dream. Act. ii. Scene 2.

At Christmas I no more desire a rose,
Than wish a snow in May's new-fangled shows;
But like of each thing, that in season grows.
Love's Labour's Lost. Act i. Scene 1.

We may observe that although roses prefer a genial temperature, and abound most in the South, yet the coldest climates, even Lapland itself, are not entirely deprived of them:—

And fringed with roses Tenglio rolls his stream.———THOMSON'S SEASONS. *Winter.*

As the rose is the most favourite illustration of female beauty, so it is used with great propriety to depict infant loveliness.

O thus, quoth Dighton, lay the gentle babes,
Thus, thus, quoth Forrest, girdling one another
Within their alabaster innocent arms:
Their lips were four red roses on a stalk,
Which, in their summer beauty, kissed each other.
King Richard III. Act iv. Scene 3.

Sometimes, but more rarely, the term is applied to men in the vigour of life; as, for instance to Richard II. who was murdered in the 34th year of his age:—

That men of your nobility and power,
Did 'gage them both in an unjust behalf,
As both of you, God pardon it! have done,
To put down Richard, that sweet lovely rose,
And plant this thorn, this canker, Bolingbroke?
First Part of Henry IV. Act i. Scene 3.

Ophelia, too, calls Hamlet

The expectancy and rose of the fair state.———*Hamlet.* Act iii. Scene 1.

The Moss Rose is the emblem of pleasure without alloy.

Rosa Gallica.

ROSA GALLICA.——RED OFFICINAL ROSE.

Class XII. ICOSANDRIA.—Order I. POLYGYNIA.

Natural Order, ROSACEÆ.——THE ROSE TRIBE.

This species of rose is a native of the south of Europe, but is common in our gardens, and flowers in June and July. In its cultivated state, it is scarcely three feet high, sending up, from its creeping roots, many stems, armed with fine, dispersed, short, straight prickles. The leaves consist of two or three pairs of leaflets, with a terminal one, attached on very short petioles to a common foot-stalk; the leaflets are ovate, rigid, doubly serrated, smooth, of a fine rather shining green colour on the upper surface, pale, downy, or hairy underneath. The stipules are linear-lanceolate, pointed, entire, downy and glandular. The flowers consist of a few large spreading petals, of a deep peculiar rich crimson colour; their base, like the stamens, of a fine gold colour, and stand on stiff, erect peduncles. The segments of the calyx are downy, sometimes fringed at the margin with a row of linear-lanceolate leaflets, as if pinnate: the stamens are numerous, bearing roundish yellow anthers; the germens are also numerous, with villose styles, united into a cylinder. The fruit is subglobose, and of a pale crimson colour.

The name Rosa is supposed to be derived from the Celtic, *rôs*, or *rhos;* from whence proceeds its Greek synonym, ῥοδον. De Theis considers that the Celtic *rhodd*, or *rhudd*, red, is the primary root of these words, the rose colour being almost synonymous with redness. Hence also came *rhus*, *rubia*, *rubus*, and the Greek name of the *pomegranate*, ῥαυ, or ῥοδια, still in use. From the beauty of the genus, the rose is dedicated to Venus, the goddess of love and beauty. Thus Berkeley, in his Utopia, describes a lover as declaring his passion by presenting to the fair beloved a rose-bud, just beginning to open; if the lady accepted and wore the bud, she was supposed to favour his pretensions. As time increased the lady's affection, he followed up the first present by that of a half-blown rose, which was again succeeded by one full-blown; and if the lady wore this last, she was considered as engaged for life. In some parts of Sussex, it is customary for the domestics to welcome a bride, by strewing the path with roses, on her first appearance.

The rose is mentioned by the earliest writers of antiquity as an object of culture. Herodotus speaks of the double rose, and Solomon of the rose of Sharon, and of the plantations of roses at Jarico. Theophrastus tells us that the hundred-leaved rose grew in his time, on Mount Pangæus; and it appears that the Isle of Rhodes (Isle of Roses) received its name from the culture of roses carried on there. Pliny mentions several sorts of roses which were cultivated by the Romans; and that those of Præneste, Campania, Miletus, and Cyrene were the most celebrated.

Roses were more highly prized by the Romans than any other flowers; and they had even attained to the luxury of forcing them. Under the reign of Domitian, the Egyptians thought of offering to that Emperor's court, as a magnificent present, roses in the middle of winter; but this the Romans smiled at, so abundant were roses in Rome at that season. In every street says Martel, the odour of Spring is breathed, and garlands of flowers, freshly gathered, are displayed. "Send us corn, Egyptians! and we will send you roses." (Mart., vi. 80.) The Roman physicians determined the kinds of plants proper to be admitted into the floral crowns put on the heads of the great men whom it was designed to honour at festivals; and these were, the parsley, the ivy, the myrtle, and the rose, which were all considered as antidotes to the evil effects of the vapours of wine.

Rose trees were employed, both by the Greeks and the Romans, to decorate tombs; and instances are given of rose gardens being bequeathed by their proprietors, for the purpose of furnishing flowers to cover their graves. An old inscription found at Ravenna, and another at Milan, prove this custom, which is also alluded to by Propertius and other poets. The bitterest curses were imprecated against those who dared to violate these sacred plantations. Sometimes the dying man ordered that his heirs should meet

every year, on the anniversary of his death, to dine together near his tomb, and to crown it with roses gathered from his sepulchral plantation. The first Roman Christians disapproved of the employment of flowers, either at feasts or on tombs, because they were so used by the Pagans. Tertullian wrote a book against the employment of garlands; and Clement of Alexandria did not think it right that kings should be crowned with roses, as our Saviour was crowned with thorns.

The rose has been a favourite subject with the poets of all countries, in all ages, and a large volume might be formed, if all the poems written on it were collected, as there has, perhaps, never yet existed a poet of any eminence, who has not sung its praises. In mythological allusions it is equally rich. It was dedicated by the Greeks to Aurora, as an emblem of youth, from its freshness and reviving fragrance; to Venus, as an emblem of love and beauty, from the elegance of its flowers; and to Cupid, as an emblem of fugacity and danger, from the fleeting nature of its charms, and the wounds inflicted by its thorns. It was given by Cupid to Harpocrates, the god of silence, as a bribe, to prevent him from betraying the amours of Venus; and was hence adopted as the emblem of silence. The rose was, for this reason, frequently sculptured on the ceilings of drinking and feasting rooms, as a warning to the guests, that what was said in moments of conviviality should not be repeated; from which what was intended to be kept secret was said to be told "under the rose." The Greek poets say that the rose was originally white, but that it was changed to red, according to some, from the blood of Venus, who lacerated her feet with its thorns when rushing to the aid of Adonis; and according to others, from the blood of Adonis himself. The fragrance of the rose is said by poets to be derived from a cup of nectar thrown over it by Cupid; and its thorns to be the stings of the bees with which the arc of his bow was strung. Anacreon makes the birth of the rose coeval with those of Venus and Minerva:—

"Then, then, in strange eventful hour,
The earth produced an infant flower,
Which sprang with blushing tinctures drest,
And wanton'd o'er its parent breast.
The gods beheld this brilliant birth,
And hail'd the Rose—the boon of earth."

Moore's Anacreon

There are many legends related of roses in the East. The story of the learned Zeb, who suggested by a rose leaf that he might be received into the silent academy at Amadan is well known. The vacant place for which he applied having been filled up before his arrival, the president intimated this to him by filling a glass so full of water, that a single additional drop would have made it run over; but Zeb contrived to place the petal of a rose so delicately on the water as not to disturb it in the least; and was rewarded for his ingenious allusion by instant admission into the society. According to the Hindoo mythology, Pagoda Siri, one of the wives of Vishnu, was found in a rose. Another fable relating to the birth of the rose is, that Flora, having found the dead body of one of her favourite nymphs, whose beauty could only be equalled by her virtue, implored the assistance of all the gods and goddesses to aid her in changing it into a flower which all others should acknowledge to be their queen. Apollo lent the vivifying power of his beams, Bacchus bathed it in nectar, Vertumnus gave its perfume, Pomona its fruit, and Flora herself its diadem of flowers. A beetle is often represented, on antique gems, as expiring surrounded by roses; and this is supposed to be an emblem of a man enervated by luxury; the beetle being said to have such an antipathy to roses, that the smell of them will cause its death. The Romans were very fond of roses. Pliny tells us that they garnished their dishes with these flowers. Cleopatra received Antony, at one of her banquets, in an apartment covered with rose leaves to a considerable depth; and Antony himself, when dying, begged to have roses scattered on his tomb. The Roman generals, who had achieved any remarkable victory, were permitted to have roses sculptured on their shields. Rose water was the favourite perfume of the Roman ladies; and the most luxurious even used it in their baths. The Turks believe that roses sprang from the moisture of Mahomet's skin; for which reason they never tread upon a rose leaf, or suffer one to lie on the ground; they also sculpture a rose on the tombstones of females who die unmarried.

We read in the history of the Mogul Empire, by Father Catron, that the celebrated Princess Nourmahal filled an entire canal with rose water, upon which she was in the habit of sailing along with the Great

Mogul. The heat of the weather disengaged the essential oil from the rose water: this was observed floating upon the surface of the water; and thus was made the discovery of the essence, otto, or attar, of roses. Formerly it was the custom to carry large vessels filled with rose water to baptisms. Bayle relates, upon this subject, that at the birth of Monsard, his nurse, in the way to church, let him fall upon a heap of flowers; and that at this instant the woman who held the vessel of rose water poured it upon the infant. All this, says Bayle, has been since regarded as a happy omen of the great esteem in which his poems would one day be beheld! Roses were often, in the days of chivalry, worn by the cavaliers at tournaments, as an emblem of their devotion to love and beauty.

Roses are intolerant of smoke, and hence they never thrive, either in or near large towns.

Loudon's Arboretum Britannicum.

Among the similies to which the rose has given occasion, perhaps none is more beautiful than that well known passage of Ariosto:—

La verginella è simile alla rosa,
Che 'n bel giardin su la nativa spina,
Mentre sola e sicura si riposa,
Nè gregge nè pastor se le avvicina;
L' aura soave e l' alba ruggiadosa,
L' acqua e la terra al suo favor s' inchina,
Gioveni vaghi e donne innamorate,
Amano averne e seni e tempie ornate.

Ma non sì tosto dal materno stelo
Rimossa viene, e dal suo ceppo verde,
Che quanto avea dagli nomini, e dal cielo
Favor, grazia, e bellezza tutto perde.

"The maiden is like the rose reposing alone and secure upon its native thorn in a beautiful garden; neither flock nor shepherd approaches it; the sweet breeze and the dewy morn, water and earth, unite in its favour; handsome youths and enamoured damsels desire to have their bosom and temples adorned with it. But no sooner is it removed from the maternal stalk, and from its green support, than it loses all the favour, grace, and beauty, that it had in the eyes of men."

For the following extracts we are indebted to that delightful work the "Flora Domestica." The Rose as well as the myrtle, is considered as sacred to the Goddess of Beauty.

In our country, in some parts of Surrey in particular, it was the custom, in the time of Evelyn, to plant roses round the graves of lovers. It is the universal practice in South Wales to strew roses and other flowers over the graves of departed friends.—We have seen, within these few years, the body of a child carried to a country church for burial, by young girls dressed in white, each carrying roses in their hands. Monestellus cites an epitaph, in which Publia Cornelia Anna declares that she had resolved not to survive her husband in desolate widowhood, but had voluntarily shut herself up in his sepulchre still to remain with him with whom she had lived twenty years in peace and happiness: and then orders her freed-men and freed-women to sacrifice there to Pluto and Proserpine, to adorn the sepulchre with roses, and to feast upon the remainder of the sacrifice.

Persia is the very land of roses. "On my first entering this bower of fairy land," (says Sir Robert Kerr Porter, speaking of the garden of one of the royal palaces of Persia,) "I was struck with the appearance of two rose trees, full fourteen feet high, laden with thousands of flowers, in every degree of expansion, and of a bloom and delicacy of scent, that imbued the whole atmosphere with exquisite perfume. Indeed, I believe that in no country in the world does the rose grow in such perfection as in Persia; in no country is it so cultivated and prized by the natives. Their gardens and courts are crowded by its plants, their rooms ornamented with vases filled with its gathered bunches, and every bath strewed with the full blown flowers plucked with the ever replenished stems. . . . . But in this delicious garden of Negaaristan, the eye and the smell are not the only senses regaled by the presence of the rose. The ear is enchanted by the wild and beautiful notes of multitudes of nightingales, whose warblings seem to increase in melody and softness, with the unfolding of their favorite flowers. Here indeed the stranger is most powerfully reminded, that he is in the genuine country of the nightingale and the rose!"

(*Persia in Miniature, Vol. iij.*)

Lord Byron has taken advantage of the various fictions and customs connected with the rose, and

has made it spring and flourish over the tomb of *Zuleika*; while the nightingale sooths his beloved with his sweet and plaintive notes:

A single rose is shedding there
Its lonely lustre meek and pale:
It looks as planted by despair—
So white, so faint—the slightest gale
Might whirl the leaves on high;
And yet though storms and blight assail,
And hands more rude than wintry sky
May wring it from the stem—in vain—
To-morrow sees it bloom again!
The stalk some spirit gently rears,
And waters with celestial tears;
For well may maids of Helle deem,
That this can be no earthly flower
Which mocks the tempest's withering hour,
And buds unsheltered by a bower;
Nor droops, though spring refuse her shower,
Nor wooes the summer beam:
To it the livelong night there sings
A bird unseen, but not remote:
Invisible his airy wings,
But soft as harp that Houri strings,
His long entrancing note.

Bride of Abydos.

The short-lived beauty of the rose has given rise to many reflections and comparisons; as in Crashaw's lines on the death of Mr. Herrys: an instance occurs also in Mr. Bowring's translation from the Russian of Kostrov:

The rose is my favorite flower:
On its tablets of crimson I swore,
That up to my last living hour,
I never would think of thee more.
I scarcely the record had made,
Ere Zephyr in frolicsome play,
On his light airy pinions conveyed,
Both tablets and promise away.

Bowring's Russian Anthology.

Roses, when they are associated with a moral meaning, are generally identified with *mere* pleasure; but some writers with a juster sentiment, have made them the emblems of the most refined virtue. In the Orlando Innamorato, the famous Orlando puts roses in his helmet, which guard his ears against a syren; and in Lucian, a man who has been transformed into an ass, recovers his shape upon eating some roses.[a]

Officinal Preparations. Three kinds of roses are used by the London College; the hundred-leaved rose, the red rose, and the dog rose. There are two formulæ in the Pharmacopœia, where the petals of the hundred-leaved rose are directed to be employed; namely, Rose Water, and the Syrup of Roses.

Rose water is used as a collyrium, or Eye-wash; and Hahnemann asserts that its efficacy in ophthalmia, is owing to the power which rose-leaves possess of exciting inflammation of the eyes in the healthy.[b]

A grain of the sulphate of copper or sulphate of zinc, is a usual addition in such cases, to an ounce of rose-water.

It is hardly necessary to add that these remedies are useful only when the disease is slight. Rose-water is also used in making the Compound Iron mixture, where it leaves a pleasant flavour on the palate, after the styptic taste of the iron, and the bitterness of the myrrh.

The Syrup of roses is slightly laxative, but is chiefly used to give colour to draughts of an uncertain hue.

The red rose, which is astringent, and of a deeper colour, is used for rose honey, the compound infusion of roses, and the confection of the red rose.

Rose honey may be added to detergent gargles, or employed as an application to the thrush in children.

The compound infusion of roses, which contains sulphuric acid and sugar, is an elegant vehicle for Epsom salts; and the merit of first using it for this purpose is attributed to the late Sir Walter Farquhar. Without this addition it is a pleasant gargle in common sore-throat.

The confection of the red rose is used to form pills, and is also dissolved in draughts, for the sake of its colour.

The confection of the dog rose is prepared with the pulp of hips (the fruit) and sugar; in the proportion of twelve ounces of the former to twenty of the latter. This confection is sometimes added to a pectoral electuary or linctus.

The French Codex contains a *tisane* made with two drachms of red roses to a quart of water; this may serve as a pleasant drink in a number of cases where the London infusion would be objectionable, from the quantity of sulphuric acid which it contains.

On the whole, the rose, though not an essential, is an agreeable, aid in pharmacy; and we should be sorry to hear that a dry utilitarianism had succeeded in dismissing it.

a Orlando Innamorato, Canto 33, Stanza 33, and Franklin's Lucian, Vol. iij. p. 236.
b Organon der Heilkhunst. p. 9. Ed. 1824.

Rosa lutea.

ROSA LUTEA.—THE YELLOW ROSE.

Class XXII. ICOSANDRIA.——Order I. MONOGYNIA.

Natural Order, ROSACEÆ.—THE ROSE TRIBE.

Prickles of branches crowded, unequal, slender, reflexed, of the branchlets small and nearly equal; leaflets flat, glabrous, simply serrated. H. Native of North America and Siberia. Flowers pale yellow. Fruit large, ovate, black.

The Plant of Roses, though it be a shrub full of prickles, yet it had bin more fit and conuenient to haue placed it with the most glorious floures of the world, than to insert the same here among base and thorny shrubs, for the rose doth deserue the chief and prime place among all floures whatsoever; beeing not onely esteemed for his beauty, vertues and his fragrant and odoriferous smell; but also, because it is the honor and ornament of our English Scepter, as by the conjunction appeareth; in the uniting of those two most Royall Houses of Lancaster and Yorke.—*Gerarde's Herbal.*

"It would be as foolish," says Professor Burnett, "to attempt to *praise* as to *paint* the rose. The rose requires no commendation here. Perhaps from such a notion it might be, that this flower was considered the symbol of silence; for we are told that the goddess *Isis*, and her son *Harpocrates*, were crowned with chaplets of roses."

We borrow the following passages from that ingenious and agreeable work, "The Sentiment of Flowers."

Rose! thou art the sweetest flower,
That ever drank the amber shower;
Rose! thou art the fondest child
Of dimpled spring, the wood nymph wild!

Moore's Anacreon.

This beautiful flower, and universal favourite of nature, has never been described in language adequate to convey an idea of its charms, although each poet in turn has made it the theme of song, or introduced eulogiums on its beauty to heighten the attraction of his poesy.

Not one of all the train has, however, been able to do justice to its merits, though they have denominated it the daughter of heaven, the ornament of the earth, and the glory of spring.

When it opens its delicate buds, the eye surveys its harmonious outlines with delight. But how shall we describe the delicate tints of its enchanting colours, or the sweet perfume which it exhales? Behold in the spring it raises itself softly in the midst of its elegant foliage, surrounded by its numerous buds. This, the queen of flowers, and the pride of Flora, seems to sport with the air that fans her, to deck herself with the dew-drops that impearl her, and to smile upon the rays of the sun which cause the expansion of her beautiful form.

Proud be the rose, with rains and dews
Her head impearling.——Wordsworth.

In producing this flower, nature appears to have exhausted herself by her prodigality, in attempting to produce so fine a specimen of freshness, of beauty in form, of exquisite perfume, of brilliancy of colour, and of grace. The rose adorns the whole earth, as it is the commonest of flowers. The same day that its beauty is perfected it dies; but each spring restores it to us with renewed freshness. Poets have had fair opportunities for singing its praises, yet they have not rendered its eulogy common-place, but its name alone redeems *their* names from forgetfulness. Emblem of all ages,—interpreter of all our sentiments,—the rose mingles in the gaiety of our feasts, in our happiness, and in our sorrows. It is also the ornament of beauty, and lends its soft carnation hues to the blush of modesty. It is given as the prize of virtue; it is the image of youth, of innocence, and of pleasure. Venus is said to feel that she has a rival in the rose, as it possesses, like her, a grace which is more lovely than beauty itself.

Anacreon, the poet of love, has celebrated the rose; and, perhaps, he has sung its praise more worthily than any of his successors. Moore has thus translated the Ode:—

While we invoke the wreathed spring,
Resplendent rose! to thee we'll sing;
Resplendent rose, the flower of flowers,
Whose breath perfumes Olympus' bowers;
Whose virgin blush, of chasten'd dye,
Enchants so much our mortal eye.
When pleasure's bloomy season glows,
The Graces love to twine the rose;

Oft has the poet's magic tongue
The rose's fair luxuriance sung;
And long the Muses, heavenly maids,
Have rear'd it in their tuneful shades.
When, at the early glance of morn,
It sleeps upon the glittering thorn,
'Tis sweet to dare the tangled fence,
To cull the timid flow'ret thence,
And wipe with tender hand away
The tear that on its blushes lay!
'Tis sweet to hold the infant stems,
Yet dropping with Aurora's gems,
And fresh inhale the spicy sighs
That from the weeping buds arise.
When revel reigns, when mirth is high,
And Bacchus beams in every eye,
Our rosy fillets scent exhale,
And fill with balm the fainting gale!
Oh! there is nought in nature bright,
Where roses do not shed their light!
When morning paints the orient skies,
Her fingers burn with roseate dyes;
The nymphs display the rose's charms,
It mantles o'er their graceful arms;
Through Cytherea's form it glows,
And mingles with the living snows.
The rose distils a healing balm,
The beating pulse of pain to calm;
Preserves the cold inurned clay,
And mocks the vestige of decay:
And when at length, in pale decline,
Its florid beauties fade and pine,
Sweet as in youth, its balmy breath
Diffuses odour e'en in death!
Oh! whence could such a plant have sprung?
Attend—for thus the tale is sung:—
When, humid, from the silvery stream,
Effusing beauty's warmest beam,
Venus appear'd, in flushing hues,
Mellow'd by ocean's briny dews;
When, in the starry courts above,
The pregnant brain of mighty Jove
Disclos'd the nymph of azure glance,
The nymph who shakes the martial lance!
Then, then, in strange eventful hour,
The earth produc'd an infant flower,
Which sprung, with blushing tinctures drest,
And wanton'd o'er its parent breast.
The gods beheld this brilliant birth,
And hail'd the Rose, the boon of earth!
With nectar drops, a ruby tide,
The sweetly orient buds they dyed,
And bade them bloom, the flowers divine
Of him who sheds the teeming vine;
And bade them on the spangled thorn,
Expand their bosoms to the morn.

Jami, an eastern poet says, "You may place a hundred handfuls of fragrant herbs and flowers before the nightingale; yet he wishes not, in his constant heart, for more than the sweet breath of his beloved rose."

Oh sooner shall the rose of May
Mistake her own sweet nightingale;
And to some meaner minstrel's lay
Open her bosom's glowing veil,
Than love shall ever doubt alone
A breath of his beloved one.———T. Moore.

And James Montgomery says, in that sweet collection, the Poet's Portfolio:

Where the true love nightingale
Woocs the rose in every vale.

Moore, in his Irish Melodies, gives us a poetical reason for the beauty and delicious perfume of the rose. Others have stated that Love, in a feast of Olympus, in the midst of a light and lively dance, overthrew, with a stroke of his wing, a cup of nectar; which precious liquor, falling on the rose, embalmed it with that delightful fragrance which it still retains.

They tell us that love in his fairy bower
Had two blush roses of birth divine;
He sprinkled the one with a rainbow's shower,
But bathed the other with mantling wine.
Soon did the buds,
That drank of the floods
Distill'd by the rainbow, decline and fade;
While those which the tide
Of ruby had dyed
All blush'd into beauty, like thee, sweet maid!—Moore.

The rose is said to have been originally white. Catullus has accounted for its change of colour in the following beautiful lines:—

While the enamoured queen of joy
Flies to protect her lovely boy,
On whom the jealous war-god rushes;
She treads upon a thorned rose,
And while the wound with crimson flows,
The snowy floweret feels her blood, and blushes.

We will conclude this article with a charming copy of verses from the German, for which we had not room in our account of the Moss Rose.

"The angel of the flowers one day
Beneath a rose-tree sleeping lay;
That spirit, to whose charge is given
To bathe young buds in dews from heaven;
Awaking from his light repose,
The angel whispered to the rose:
'O fondest object of my care,
Still fairest found where all are fair,
For the sweet shade thou'st given to me,
Ask what thou wilt, 'tis granted thee.'
'Then,' said the rose, with deepened glow,
'On me another grace bestow:'
The spirit paused, in silent thought,
What grace was there that flower had not!
'Twas but a moment:—o'er the rose
A veil of moss the angel throws,
And robed in Nature's simplest weed,
Could there a flower that rose exceed?"

The Yellow Rose is the emblem of *Infidelity*.

Ruta graveolens

RUTA GRAVEOLENS.—COMMON RUE.

Class X. DECANDRIA.—Order I. MONOGYNIA.

Natural Order, RUTACEÆ.——THE RUE TRIBE.

Rue is a hardy evergreen under-shrub, a native of the south of Europe, and has been cultivated in our gardens from time immemorial, where it flowers from June to September. Before the Reformation, it was called the *Herb of Grace,* from the circumstances of small bunches of it having been used by the priests for sprinkling of holy water among the people. The stem is bushy, round, and branched, rising to the height of two or three feet, woody at the lower part, and covered with a rough, striated, grey bark; but the upper branches are smooth, and of a yellowish green colour. The leaves are alternate, stalked, doubly pinnate, slightly tomentose, smooth, dotted, and of a deep bluish glaucous hue; the leaflets obovate, sessile, decurrent, very obscurely crenate, or entire, and tapering at the base. The flowers are of a pale greenish-yellow colour, copious, and produced in terminal corymbose panicles, the terminal ones only having the full number of each of the parts of fructification, while the rest are octandrous, and have the calyx 4-parted, and a 4-petaled corolla. The petals are nearly ovate, concave, spreading, fringed at the extremity, and attached by narrow claws. The stamens are ten, awl-shaped, the length of the corolla, bearing small yellow anthers. The germen is oval, punctured, with crucial furrows, and surmounted by a short awl-shaped style and simple stigma. The capsule is gibbous, 5-lobed, bursting elastically at the summit of each lobe, and containing numerous rough, angular, blackish seeds. The irritability of the stamens in the rue is a physiological phenomenon of interest.

Rue is easily propagated by slips or cuttings in the spring; and like rosemary, lavender, hyssop, and other similar aromatics, it thrives best in poor dry soils.

Qualities.—Every part of the plant has a strong peculiar odour, and a pungent, bitterish, nauseous taste. The bruised leaves are extremely acrid, and excoriate the mouth and nostrils, if incautiously applied, as they often are, to counteract bad smells. Their specific virtues reside chiefly in an essential oil, which they yield on distillation with water.

Medical Uses.—Rue is a moderately active stimulant, and antispasmodic, and was much extolled by the ancients. Hippocrates commends it as a resolvent and diuretic, and attributes to it the power of resisting contagion and poisons. An infusion of the leaves was formerly in much repute, as an anthelmintic, and if taken in sufficient quantity it certainly proves noxious to intestinal worms. Boerhaave, speaking of rue, observes, that the greatest commendations he can bestow upon it fall short of its merits. "What medicine," says he, "can be more efficacious for promoting perspiration, for the cure of hysteric passion, and of epilepsies and for expelling poison?" Externally it has been employed in fomentations to gangrenous ulcers; but it possesses no superiority over chamomile or wormwood for these purposes, and it is but seldom employed.

Dose.—The dose of the powdered leaves is from ℈i to ℈ij.

Rue was anciently also named *herb grace, or herb of grace,* and it is to this day called *ave grace* in Sussex, in allusion doubtless to *Ave Maria* gratiâ plena; and it is remarkable that Mary, in Hebrew, signifies bitter. Warburton says, that *rue* had its name *herb of grace* from its having been used in exorcisms. When Ophelia, in Shakespeare's Hamlet, says to the Queen, "There's rue for you and here's some for me; we may call it herb of grace o 'Sundays:' the fair moralist has no reference to this plant being used in exorcisms, performed in churches on Sundays; but means only, that the Queen may with peculiar propriety on Sundays, when she solicits pardon for that crime which she has so much occasion to rue and repent of, call her rue *herb of grace.* It was, indeed, the common name for rue in Shakespeare's time; and Greene, in his Quip for an upstart Courtier, has this passage: "some of them smiled and said rue was called herbe-

grace, which though they scorned in their youth, they might wear in their age, and that it was never too late to say *miserere*."

The gardener in Richard II. says of the Queen :—

> Here did she drop a tear; here in this place,
> I'll set a bank of rue, sour herb of grace;
> Rue even for ruth, here shortly shall be seen
> In the remembrance of a weeping Queen.

Here the gardener plays upon the name, and might mislead an etymologist who knew no better. He might, with more truth, have called rue bitter than sour, and he whimsically enough makes it take the place of rosemary, which was the emblem of remembrance, as rue was of *grace*. Thus Perdita, in the Winter's Tale:

> "Reverend sirs,
> For you there's rosemary and rue, these keep
> Seeming and favour all the winter long,
> Grace and remembrance be to you both."

They are both evergreens, retaining their appearance and taste during the whole year, and therefore are proper emblems of remembrance and grace. Rue seems to have been used formerly in nosegays; for the Clown in All's Well that End's Well, having said of the Countess, "she was the sweet marjoram of the salad, or rather the herb of grace:" Lafeu replies, "they are not salad herbs, you knave; they are nose herbs;" upon which the clown in character, remarks, "I am no great Nebuchadnezzar, sir, I have not much skill in grass:" thus punning upon the name of grace, as the gardener did upon the other name of rue.

Rue is used by some as a tea, and also externally in discutient and antiseptic fomentations. Among the common people the leaves are sometimes taken with treacle, on an empty stomach, as an anthelmintic. A conserve, made by beating the fresh leaves with thrice their weight of fine sugar, is the most commodious form for using the herb in substance: The dose of the powdered leaves may be 15 to 20 grs: given twice or thrice a day. The officinal preparations are the oil and an extract. The former is procured in the quantity of 59 grains of oil from 21 pounds of rue, and has the strong ungrateful odour and taste of the plant. When recently drawn, the colour is yellow, but by age it deepens to a brown, and deposits a brownish resinous sediment. It congeals at 40° Fahrenheit. The extract of *rue* is prepared like other simple extracts: it is inodorous, but has a bitter acrid taste. The medicinal properties are different from those of the plant, the stimulant and narcotic powers of which depend on the volatile oil it contains, which is dissipated during the inspissation of the extract.

Gerard says, "The herb a little boiled or skalded, and kept in pickle as Sampier, and eaten, quickens the sight. The leaves of Rue beaten and drunke with wine are an antidote against poisons, as Pliny saith. Dioscorides writeth, that a twelve penny weight of the seed drunke in wine is a counterpoison against deadly medicines or the poison of Wolf's-bane, Mushrooms or Toad-stools, the biting of Serpents, the stinging of Scorpions, Bees, Hornets, and Wasps; and is reported, that if a man bee anointed with the juice of Rue, these will not hurt him, and that the serpent is driuen away at the smell thereof when it is burned: insomuch that when the Weesell is to fight with the serpent, shee armeth her selfe by eating Rue, against the might of the serpent."

In the Language of Flowers Rue represents *Purification*.

Colchicum autumnale.

COLCHICUM AUTUMNALE.—COMMON MEADOW SAFFRON.

CLASS VI. HEXANDRIA.—ORDER III. TRIGYNIA.

NATURAL ORDER, IRIDEÆ.—THE CORN FLAG TRIBE.

MEADOW-SAFFRON, like the colts-foot, produces its leaves one season, and flowers at another; but differs in this respect, that the leaves, and fruit, appear early in the spring, and the flowers in the autumn. Hence it has been considered the harbinger of winter, and Linnæus, in his Philosophia Botanica, observes, "*Colchicum autumni et gelu nuncia est.*" It is an indigenous perennial plant, found in several counties, chiefly in the west and north of England, where it grows in tolerable abundance, in moist rich meadows. It occurs, among other places, at Filkins and Bradwell, Oxfordshire; in Weston Park, Staffordshire; at Little Stonham and Bury, Suffolk; near Devizes, Wiltshire; about Derby and Northampton; and at the foot of the Malvern hills, in Worcestershire. Miller observed it, many years ago, in great plenty, in the meadows near Castle-Bromwick, in Warwickshire, in the beginning of September, and says, that the common people called the flowers *Naked Ladies*, because they come without the leaves. In Scotland it appears to be very rare; but Lightfoot, in his "Flora Scotica," mentions it as growing at Alloa.

The stem, which is called a solid bulb, consists of a fleshy succulent cormus, abounding in a milky juice, and covered with a brown membranous coat. This bulb, which is nearly as large as that of a tulip, and furnished at the base with numerous small fibrous roots, perishes after the ripening of the seeds, having first thrown out a lateral offset, that produces the flowers of the ensuing season. From this last arises, in autumn, along a furrow in the side of the old bulb, a long naked tube, which at the upper part expands into the flower. The leaves spring directly from the bulb in spring, along with the capsules. They are dark green, smooth, obtuse, spear-shaped, above a foot long, and pointed; growing erect. On the decay of the leaves, the flower makes its appearance, towards the latter end of September. It is large, of a pale purple or lilac colour, divided into six deep, elliptic-oblong, concave, upright segments, and rising immediately from the bulb, by a tube five or six inches long, two-thirds of which are sunk in the ground. The perianth is single, and the flowers are therefore often described as having no calyx. The filaments are awl-shaped, inserted into the tube of the corollaceous perianth, and support erect, oblong, versatile, yellow, extrorse anthers. The germen is roundish, and imbedded in the bulb. The styles are thread-shaped, the length of the stamens, and terminated by linear, recurved, and downy stigmas. The fruit is a capsule, with three lobes, closely connected; its dehiscence is loculicidal, and it contains numerous whitish, smooth, globular seeds, which are perfected in the month of June, when the capsule rises above ground on a short peduncle, accompanied by the leaves. The seeds are covered by membranous testæ, and inclose a dense, fleshy albumen. A considerable variety obtains in this species, both with respect to the form and colour of the flower. In one variety the flowers accompany the leaves in spring.

For the introduction of Colchicum into modern practice, we are principally, if not wholly indebted to Mr. Want. The first hint he obtained on this subject, was derived from the writings of Alexander of Tralles, a Greek physician of the sixth century, whose book on gout is one of the most valuable clinical records of antiquity; and who, in his chapter on anodynes remarks, that some persons take a medicine called *Hermodactylon*, which produces an evacuation of watery matter from the bowels, attended with such relief that patients are immediately able to walk. But, says he, it has this bad property, that it disposes those who take it to be more frequently attacked with the disease. He speaks, also, of its producing nausea and loathing of food; and proceeds to describe the manner of counteracting its bad properties. The effects here spoken of are so similar to those resulting from the exhibition of the Eau Medicinale, that Mr. Want was led to hope that it might be the same medicine, or, at least, that it possessed powers of the same kind; and on procuring a specimen of this plant from Constantinople, it was found to be the Colchicum. The Hermodactyl was strongly recommended by Paulus Ægineta as a specific for the gout, also by Pepagoneus, who wrote a treatise on that disease at the request of the Emperor Michael Palæologus, in the 13th century; and such was its reputation, that it obtained the name of *Anima Articulorum*, "the soul of joints." Two of the most celebrated gout-specifics, viz. Turner's Gout-powder, and the Vienna Decoction, the latter of which is so strongly recommended by Behrens in the *Ephemerides Naturæ Curiosæ*, are formed principally of Colchicum; and it is notorious to every practitioner acquainted with the history of his profession, that this root has, at different epochs, obtained a celebrity in the treatment of gout, though

its general use has, after a time, been suspended. But Prosper Alpinus says, that Colchicum is perfectly inert, and that the Egyptian women fatten themselves with the wasted roots, often eating twenty in the course of the day, without having any effects produced, either on the stomach or bowels. More modern experimentalists have differed nearly as much on the powers of Colchicum; but, owing to the investigations of Messrs. Battley and Thomson, the time at which the bulb should be taken up has been satisfactorily proved, by its uniform effects. In the spring, *(April)* the root does not materially vary in size and general appearance from that which is ordinarily met with. It is then of full size, but irregularly indented or hollow. At this time it is found with a small attached bulb, about the size of a bean. The growth of this small bulb *proceeds* from the latter end of April or beginning of May, (according to the season,) until the latter end of June or beginning of July, at which time it attains its full growth. The parent root appears to yield as the new production advances, and when the latter attains its full size is no where to be found. The *new* root is then plump, firm, and without any indentation or hollow, and does not undergo any change of appearance from this period until the latter end of August, when in its turn it becomes *old*—for at this period it throws out a new bulb: from that new bulb the flower proceeds, and in the course of a very few days it is fully displayed. Between this latter period and the spring very little apparent change takes place: the root and offset are then found as first described. These changes are, of course, subject to some variation from soil, climate, and season. The state and condition of the root, if subjected to experiment, illustrate the process of nature in a striking and forcible manner. A transverse section of the bulb, exposed to the temperature of 170, if procured in *autumn*, contracts, and when dried is shrivelled; if procured in *spring*, the cuticle collapses, no other part of the then remaining substance being capable of enduring heat; if procured in the months of *July* and *August*, before the new bulb is projected it remains quite solid and firm, and has a creamy appearance.

It may be inferred from these facts, that this root is deprived of its power progressively, from the time of throwing out the new bulb, until its final disappearance; and that, although very little change of appearance occurs during the winter months, it really undergoes a decided deterioration in that period.

Qualities and Chemical Properties.—The root, when taken from the ground at the time recommended, and cut transversely, exhibits a milky appearance on both surfaces. The exudation is not particularly pungent; it rather impresses the tongue with a cold but peculiar sensation; which remains unabated for some time. This sensation is accompanied by a peculiar excitement, which is conveyed to the fauces, and continues still longer than the first-mentioned sensation of cold. The properties of Colchicum reside in this milky juice, and depend upon an alkaline principle termed *veratrine*, which has also been discovered in the seeds of the Veratrum *Sabadilla*, and the Veratrum *album*. When treating of the latter plant, we shall fully advert to its properties. It contains, also, gum, starch, inulin, and extractive matter, which, when in solution, undergoes a chemical change, supposed by Dr. Paris to be analogous to that which takes place in the infusion of senna. Sir E. Home ascertained, that this deposit in the vinous infusion excites nausea and griping, but that it may be removed without destroying the efficacy of the medicine. It is now generally believed, that Husson's *Eau Medicinale* owes its virtues to Colchicum; for not only does it correspond to our Vinum Colchici in its effects, but it is notorious that Wedelius, a continental physician, sold an empirical preparation of this plant, which was extolled as a panacea; while the catalogue of its virtues bears strong resemblance to Husson's original advertisement, and the account of this nostrum is contained in Geoffroy's system of Materia Medica, well known in France, where Husson lived. Wilson's and Reynolds' specifics are also entirely indebted to Colchicum for any virtues they may possess.

Medical Properties and Uses.—Colchicum is one of the most powerful remedies we are possessed of, in consequence of the direct action it is capable of exerting over the heart, and arteries. On the continent it has been chiefly used in the treament of hydrothorax, and asthma, but although we have had considerable experience in its administration, we could never satisfy ourselves that its effects in those diseases were equal to squills; and as a diuretic it can never be relied on. If given in overdoses it produces distressing nausea, deadly vomiting, and profuse purging; but combined with some saline purgative which acts on the bowels *of itself*, the Colchicum even in large doses exerts its own specific powers, and in a few hours generally succeeds in destroying the paroxysm of gout. It is to be regretted, however, that more recent experience has not confirmed the panegyrics lavished on Colchicum twenty years ago. It often reduces the unhappy patient to a pitiable state, especially if he undertakes the management of his own case.

Dose.—The dose of the powder is from three to eight grains.

Off. Prep.—Vinum Colchici. *L.*
Acetum Colchici. *L.*
Oxymel Colchici. *D.*
Syrupus Colchici Autumnalis. *E.*

In the language of Flowers Meadow Saffron says, "my best days are past."

Crithmum maritimum.

CRITHMUM MARITIMUM.—SEA SAMPHIRE.

Class V. PENTANDRIA.—Order II. DIGYNIA.

Natural Order, UMBELLIFERÆ.—THE UMBELLIFEROUS TRIBE.

Margin of calyx obsolete. Petals roundish, entire, involute, ending in an obovate segment. Transverse section of fruit nearly terete; mericarps with 5 elevated, sharp, rather winged ribs: lateral ribs a little broader than the rest, and marginating: pericarp spongy, with large cells. Seed semi-terete, constituting a free nucleus, which is covered with copious vittæ in every part. A suffruticose, glabrous, fleshy herb. Petioles sheathing at the base. Leaves bipinnate, leaflets oblong-linear. Umbels compound. Involucre and involucets of many leaves. Flowers white. This genus differs from all others in the present tribe as the genus *Archangelica* does from the rest of the genera in tribe Angelicæ, in the seed being a free nucleus, covered with copious vittæ. Native of rocky sea-shores and cliffs; as along the Black Sea, in Tauria; and along the Mediterranean Sea; and of Europe, along the shores of the Western Ocean from Spain to Britain; and of the Canary Islands. In Britain on the rocky sea-shore and cliffs. Samphire is called *Perce-pierre* and *Saint-pierre* (of which our English name appears to be a corruption,) in French; *Meerfenchel* in German; and *Finnochio marino* in Italian. The herb makes an old fashioned English pickle. It is sold in the London shops, and is a frequent addition in salads. In taste it is crisp and aromatic, and constitutes a light and wholesome condiment. It is generally gathered in places where it is found wild, and the allusion to the practice, by Shakespeare, in his description of Dover Cliffs, is in the following lines:—

> ——————How fearful
> And dizzy 'tis, to cast one's eyes so low!
> The crows, and choughs, that wing the midway air,
> Show scarce so gross as beetles: half way down
> Hangs one that gathers samphire; dreadful trade!
> Methinks, he seems no bigger than his head:
> The fishermen, that walk upon the beach,
> Appear like mice; and yon tall anchoring bark,
> Diminish'd to her cock; her cock, a buoy
> Almost too small for sight: the murmuring surge,
> That on the unnumber'd idle pebbles chafes,
> Cannot be heard so high:—I'll look no more;
> Lest my brain turn, and the deficient sight
> Topple down headlong.
>
> *King Lear, Act* iv. *Scene* 6.

There is an interesting incident connected with the rock samphire, the detail of which may not be out of place here. It should be stated, that the Lichens or aerial algæ, never grow submerged; the fuci, or aquatic algæ, never grow emerged: the same may be said of other plants which are the living demarcations of land and sea; e. g. the samphire never grows but on the sea-shore, and yet it never grows within reach of the waves; that is to say, it is never so near as to be covered by the water. It happened not long since that a knowledge of this fact was useful in a way and at a time when botanic knowledge might *a priori* have been expected to be of little practical importance. During a violent storm, in November 1821, a vessel, passing through the English Channel, was driven on shore near Beachy Head, and the whole crew being washed overboard, four escaped from the wreck, only to be delivered, as they thought, to a more lingering and fearful, from its being a more gradual and equally inevitable death; for having in the darkness of the night, been cast upon the breakers, they found, when they had climbed up these low rocks, that the waves were rapidly encroaching, and they doubted not that, when the tide should be at its height, the whole range would be entirely submerged. The darkness of the night prevented any thing being seen beyond the spot upon which they stood, and which was continually decreasing by the successive wave. The violence of the storm left no hope that their feeble voices, even if raised to the uttermost, could be heard on shore; and they knew that, amidst the howling of the blast, they could reach no other ear than that of God. Man could afford them no assistance in such a situation, even if their distress were known. The circle of their existence here seemed gradually lessening before their eyes, their little span of earth gradually contracting to their destruction, already they had receded to the highest points, and already the infuriated waters followed them, flinging over their devoted heads the foremost waves, as heralds of their speedily approaching dissolution. At this moment one of these wretched men, while they were debating whether they should not in this extremity throw themselves upon the mercy of the waves, hoping to be cast upon some higher ground, as

even if they failed to reach it, a sudden would be better than a lingering death,—in this extremity one of these despairing creatures to hold himself more firmly to the rock, grasped a weed, which even wet as it was, he well knew, as the lightning's sudden flash afforded a momentary glare, was not a fucus, but a root of samphire; samphire is a plant which never grows submerged. This then became more than an olive branch of peace, a messenger of mercy; they knew that He who alone can calm the raging of the seas, at whose voice alone the winds and the waves are still, had placed his landmark, had planted his standard here; and by this sign they were assured that He had said to the wild waste of waters, "Hither shalt thou come, and no further." Trusting, then, to the promise of this child of earth, they remained stationary during a dreadful yet then comparatively happy night, and in the morning they were seen from the cliffs above, and conveyed in safety to the shore. *From a lecture by the late Professor Burnett.*

The very existence of a kingdom depends on sea-reeds, sedges, and kindred plants. These form the defence of the dykes of Holland, and prevent not only the invasion of the sea, but the advance of the drift sand on the fertile soil. When in a solitary walk, by the sea side, we have heard in a still night, the sentinel from the rampart, repeat the watch word, "All's well," we have turned instinctively to the 'sea mat weed' on the shore, mantling the beach; the sentinel of providence, that forbids the approach of the waves. To the intelligent mind, the kingdom of vegetation presents remarkable illustrations of a supreme creator:—

"Not a tree,
A plant, a blossom, but contains
A folio volume. We may read, and read,
And read again; but still find something new,
Something to please, and something to instruct,
E'en in the noisome weed."

The Philosopher who was cast away on an island, on seeing geometrical figures on the sand, exclaimed 'inhabitants are here;' in like manner, when we survey the physiology of plants, do we receive demonstrable proofs of their infinitely wise AUTHOR:—

Maximus in maximis, maximus in minimis.

Whether we survey vegetable grandeur in mass or in detail; or in the humblest moss that springeth out of the wall, studies such as these have a tendency to soften and to soothe the mind. It is then no light enjoyment—

'To consider the lilies of the field how they grow;'

Is it not a privilege to walk with GOD in the garden of creation, and hold converse with his providence?

Gerarde says that "Rocke Sampier hath many fat and thicke leaves somewhat like those of the lesser Purslane, of a spicie taste, with a certain saltnesse; amongst which rises up a stalk diuided into many smal spraies or sprigs, on the top whereof grow spoky tufts of white flowers, like the tufts of Fennell or Dill; after that comes the seed, like the seed of Fennell, but greater: the root is thicke and knobby, beeing of smell delightfull and pleasant. The second Samphier called *Pastinaca marina*, or sea Parsnep, hath long fat leaves very much jagged or cut euen to the middle rib, sharp or prickely pointed, which are set upon large fat jointed stalks; or on the top whereof do grow tufts of whitish or else reddish floures. The seed is wrapped in thorny husks: the root is thicke and long, not unlike to the Parsenep, very good and wholesome to be eaten."

To Pickle Samphire. Put the quantity required into a clean pan, throw over it two or three handfuls of salt and cover it with spring water for twenty four hours; next put it into a clean saucepan, throw in a handful of salt, and cover it with good vinegar. Close the pan tight, set it over a slow fire, and let it stand till the Samphire is green and crisp, then take it off instantly, for should it remain till it is soft, it will be totally spoiled. Put it into the pickling pots and cover it close; when it is quite cold tie it down with a bladder and leather, and set it by for use. Samphire may be preserved all the year by keeping it in a very strong brine of salt and water, and just before using it, put it for a few minutes into some of the best vinegar.

Samphire is propagated by parting the roots, or by sowing the seeds in April; but it is rather difficult of cultivation. Marshall says, "it likes a cool situation, but yet prefers a sandy or a gravelly soil, and plenty of water. "Some" he adds, "I have found do best in pots, set for the morning sun only. J. Braddick placed it in a sheltered dry situation, screened from the morning sun, protected it by litter during winter, and in spring sprinkled the soil with a little powdered barilla. This I do, he says, "to furnish the plant with a supply of soda, since, in its native place of growth, it possesses the power of decomposing sea water, from which it takes the fossil alkali, and rejects the muriatic acid. With this treatment it has continued to flourish at Thames Ditton for some years, producing an ample supply of shoots, which are cut twice in the season, for pickling or to be used in salads."

Cassia Senna.

CASSIA SENNA.—OR EGYPTIAN CASSIA.

Class X. DECANDRIA.—Order I. MONOGYNIA.

Natural Order, LEGUMINOSÆ.—THE PEA TRIBE.

The plants which furnish the leaves known in commerce under the name of Senna, are low shrubs, growing spontaneously in Syria, Arabia, and Upper Egypt, whence the drug is imported into Europe, chiefly from Alexandria; and hence it has obtained the name of Alexandrian Senna. It is cultivated in Italy, the West Indies, and some other parts of the world. According to Burckhardt, the best grows in the valleys of Nubia, where it is called *Abreygia*; flowering in July and August. In our stoves the plants remain shrubby, but in the gardens become annuals.

The genus *Cassia*, of which *senna* is a section, includes a very large assemblage of species; the two which afford the officinal leaves are C. *obovata*, and *lanceolata*. The former is the acknowledged officinal species of the Italians, but the leaves of both are mingled in commerce. The colours of the leaves afforded by these two plants are somewhat different, "those of the *lanceolata* being a bright yellowish green; those of the *oborata* green without any yellowish cast. With the true senna are mixed the leaves of another plant, the *Cynanchum Arquel*. Rouillon says that at Cairo the traders mix these in the proportions of 500 of C. *lanceolata*, 300 of C. *obovata*, and 200 of Cynanchum Arquel."—(*Don.*)

The Sennas rise with a somewhat woody, erect, branching stem, to the height of about two feet. The leaves are alternate, smooth, flat, and pinnated; each leaf is composed of five or six pairs of oval, entire, pointed, sessile leaflets, about an inch long, and one fourth of an inch broad, of a firm texture, and bright yellowish green colour. The flowers are pale yellow, borne in loose axillary racemes, on the upper part of the stem. The calyx is monophyllous, five-toothed; the teeth are obtuse, concave, and deciduous. The corolla consists of five roundish, entire, concave petals, the three lower ones largest; the filaments are ten, the three inferior ones longer than the others, and furnished with large curved anthers: the germen is cylindrical, supporting a short incurved style, and an obtuse stigma. The fruit is described by Gærtner as an ovate kidney-shaped membranous legume, with foliaceous appendages, marked with capillary, transverse, parallel striæ, bivalve, with six or nine cells, and divided by very thin transverse partitions, each containing one oblong heart-shaped seed.

According to Olaus Celsus, the Greek word κασσια which is used by Dioscorides, is derived from the Hebrew *Ketzioth*, rendered in the Septuagint by κασσιαν; and this has been latinized by Cassia. *Senna* is but slightly varied from Sæna, or Sænna, the Arabic name for the plant; and even this is said to own a Hebrew origin.

It has long been famed, even proverbially, for its cathartic powers: thus Shakspeare says in Macbeth,

> "What rhubarb, *senna*, or what purgative drug
> Would scour these English hence?"

The qualities of Senna were known to the Arabian physicians, Serapion and Mesue, who flourished about the beginning of the ninth century, and used it as a medicine. Actuarius, a Greek Physician, who lived in the thirteenth century, also notices it, but like Mesue, employed the pod, not the leaves.

Senna has been grown in England, but as it is an annual, its seeds must be sown in the early part of the spring on a hot-bed; "and when the plants are fit to remove, each must be placed in a separate pot, filled with light earth, and plunged into a moderate hot-bed, where they should be shaded till they have taken fresh root; after which, they should have fresh air admitted to them every day, in proportion to the warmth of the season, and should be frequently watered. When the plants have filled the pots with their roots, they should be shifted into larger; and if they be too tall to remain in the hot-bed, they must be placed either in the stove, or a glass case, where they may be defended from the cold, but in warm weather have plenty of air. It is very rare that seeds are perfected in England."

Medical Properties and Uses.—Senna is frequently administered in the form of infusion, combined either with manna or tamarinds, soluble tartar, Epsom salts, &c. Dr. Cullen recommends coriander seeds, and Dr. Paris *Bohea tea*, to cover its nauseous taste; and guaiacum is said to increase its powers.

We have lately had our attention excited to a preparation, called a concentrated essence, made, we understand, without a high temperature being applied: and one drachm to an ounce of water will form a mix-

ture of Senna equal in strength to the infusion which is usually prescribed. When it is considered that the infusion will not keep many hours without precipitating an oxidized extract, and that it is often wanted at a minute's notice, we think that our readers will be thankful for our apprising them of so valuable a preparation, which after several trials we have ascertained to be worthy of reliance.

Among the preparations of Senna, we may mention the infusion, the tincture, and the confection, (lenitive electuary.)

The infusion is the basis of the well-known black draught. Dr. Hooper's receipt for this popular remedy is as follows:—

Take of Epsom Salts half an ounce,
Infusion of Senna an ounce and a half,
Tincture of Senna a drachm and a half,
Syrup of Ginger a drachm,
Compound Spirit of Ammonia twenty minims:—Mix for a draught.

We may here mention, that a new method of making tinctures has been introduced of late years. The following account of it, is from the Edinburgh Pharmacopœia of 1839.

Tinctures are usually made by reducing the solid ingredients to small fragments, coarse powder, or fine powder, macerating them for seven days or upwards in proof-spirit or rectified spirit, straining the solution through linen or calico, and finally expressing the residum strongly, to obtain what fluid is still retained in the mass. A much superior method, however, has been lately introduced, which answers well for most tinctures, namely, the method of displacement by percolation [straining.] According to this process, the solid materials, usually in coarse or moderately fine powder, are moistened with a sufficiency of the solvent to form a thick pulp; in twelve hours, or frequently without any delay, the mass is put into a cylinder of glass, porcelain, or tinned iron, open at both ends, but obstructed at the lower end by a piece of calico or linen, tied tightly over it as a filter; and the pulp being packed by pressure, varying as to degree with various articles, the remainder of the solvent is poured into the upper part of the cylinder, and allowed gradually to percolate. In order to obtain the portion of the fluid which is kept in the residum, an additional quantity of the solvent is poured into the cylinder until the tincture which has passed through equals in amount, the spirit originally prescribed; and the spirit employed for this purpose, is then recovered for the most part by pouring over the residum as much water as there is of spirit retained in it, which may be easily known by an obvious calculation in each case. The method by percolation, where applicable, will be found much more convenient and expeditious, than the mode hitherto commonly followed, and it exhausts the solid materials, in general, much more completely. As considerable practice. however, is required for managing the details in different cases, more especially in regard to the degree of minuteness of division of the solids, and the degree of firmness with which they are to be packed in the cylinder, we have thought it right to direct that the method by maceration, may be followed as an alternative. But the method by percolation is now preferred by all who have made sufficient trial of it to apply it correctly.

"If Sene," says Gerard, "be infused in whey, and then boiled a little, it becommeth good physicke against melancholy, clenseth the braine and purgeth it, as also the heart, lieur, milt, and lungs, causeth a man to looke young, engendreth mirth, and taketh away sorrow: it cleereth the sight, strengthneth hearing, and is very good against old fevers and diseases arising of melancholy."

"April" says the author of the "Flora Domestica, is described by a French poet in the colours of an English May; the spring, of course, being somewhat earlier in the warmer climate of France:—

April—the hawthorn and the eglantine,
Purple woodbine,
Streaked pink, and lily-cap, and rose,
And thyme, and marjoram, are spreading
Where thou art treading;
And their sweet eyes for thee unclose.———Remy Belleau."

"A considerable number of plants," observes Dr. Aikin, "flower in this month; in particular, many of the fruit-bearing trees and shrubs, the flowers of which are peculiarly termed blossoms. These form a most agreeable spectacle, as well on account of their beauty, as of the promise they give of future benefits.

Hope waits upon the flowery prime.

It is, however, an anxious time for the possessor, as the fairest prospect of a plentiful increase is so often blighted. Shakespeare draws a pathetic comparison from this circumstance, to paint the delusive nature of human expectations.

This is the state of man; to-day he puts forth
The tender leaves of hope, to-morrow blossoms,
And bears his blushing honours thick upon him,
The third day comes a frost, a killing frost."

Mimosa pudica.

MIMOSA PUDICA.—THE SENSITIVE PLANT.

Class XXIII. POLYGAMIA.——Order I. MONOGYNIA.

Natural Order, LEGUMINOSÆ.—THE PEA TRIBE.

Stem herbaceous, prickly, with the petioles and peduncles more or less beset with stiff hairs or bristles; leaves somewhat digitately pinnate, with 4 pinnæ, each pinna bearing many pairs of linear leaflets. Native of Brazil. Flowers red. Legumes glabrous in the middle, but with the margins beset with stiff bristles. Superior leaves sometimes the same as the inferior ones. This plant is commonly grown in gardens, under the name of the sensitive plant, the leaves falling on the slightest touch. Sensitive plants were not unknown to the ancients. Theophrastus speaks of the Αισχυνομενη, as growing about Memphis in Egypt, and Pliny of the *Æschynomene*, so called from its contracting the leaves at the approach of the hand. It is thus characterised in the flowery poetry of Darwin:—

"Weak with nice sense the chaste *Mimosa* stands,
From each rude touch withdraws her timid hands;
Oft as light clouds o'erpass the summer glade,
Alarm'd she trembles at the moving shade,
And feels alive through all her tender form
The whisper'd murmurs of the gathering storm;
Shuts her sweet eye-lids to approaching night,
And hails with freshen'd charms the rising light."

The cause of the well-known motion of the leaves of the sensitive and humble plants has been the subject of many ingenious explanations; but it has not been treated by any botanist with so much ingenuity as by Dr. Dutrochet, whose theory we give as explained in the Botanical Register.

M. Dutrochet states, that having ascertained hot nitric acid to possess the power of separating and reducing to its simplest form the whole mass of vegetable tissue, and that the same acid produced other effects equally advantageous for the examination of the most obscure parts of vegetable structure, he was induced to give his attention to that of *Mimòsa pudìca*, in the hope of gaining some evidence respecting the cause to which its sensibility is to be ascribed. Beginning with the pith he observed a considerable number of minute globules, of a greenish colour, intermingled among the cells, and adhering to them in an irregular manner. After attempting to show the probability of these globules having deceived Mirble in various points of his analysis of vegetation, and especially in regard to the pores, which that botanist supposes to exist in the cellular tissue of plants, Dr. Dutrochet proceeds to remark, that the application of hot nitric acid to these globules renders them perfectly opaque, whence he concludes that they are in fact minute cells, filled with a particular fluid which is subject to become concrete by the application of acids. Now it is known that such fluids as are thus altered by acids are usually dissolved and liquefied again by the application of alkalies. A few drops, therefore, of a solution of hydrate of potass were suffered to fall upon a portion of the pith on which nitric acid had been acting, and the mixture was exposed to the heat of a lamp. Being examined after a few minutes, the globules were found to have resumed their natural appearance. This curious fact indicated, in the opinion of Dutrochet, a strong and unexpected point of analogy between plants and animals. According to the microscopical researches of some modern observers, it has been ascertained that all the organs of animals are composed of a conglomeration of minute corpuscles, similar to those just described; the corpuscles which constitute the muscles are soluble in acids, but those which compose the nervous system are insoluble in the same acids, and only soluble in alkalies. Now, as the chemical properties and external appearance of the particles scattered among the cellular tissue of plants, and constituting the nervous system of animals, are the same, the author is induced to infer, that the spherical particles of plants are in fact the scattered elements of their nervous system. This hypothesis receives additional strength from the great similarity which exists between the medullary substance of the brain of *Molùsca gasteropòda* and the cellular medullary tissue of plants. In pursuit of this idea, Dr. Dutrochet made a variety of experiments upon the sensitive plant, the results of which seem to be these:—The principal point of locomotion or of mobility exists in the little swelling which is situated at the base of the common and partial petioles of the leaves; this swelling is composed of a very delicate cellular tissue, in which is found an immense number of nervous corpuscles; the axis of the swelling is formed of a little fascicle of tubular vessels. It was ascertained by some delicate experiments, that the power of movement, or of contraction and expansion, exists in the parenchyma and cellular tissue of the swelling, and that the central fibres have no specific action connected with the motion. It also appeared that the energy of the nervous powers of the leaf depended wholly upon an abundance of sap, and that a diminution of that fluid occasioned an extreme diminution of the sensibility of the leaves. Prosecuting his remarks still further,

the author ascertained that in the motion of the sensitive plant two distinct motions take place, the one of locomotion, which is the consequence of direct violence offered to the leaves, and which occurs in the swellings already spoken of; the other is nervimotion, which depends upon some stimulus applied to the surface of the leaflets, unaccompanied by actual violence, such as the solar rays concentrated in the focus of a lens. As in all cases the bending or folding of the leaves evidently takes place from one leaf to another with perfect continuity, it may safely be inferred, that the invisible nervous action takes place in a direct line from the point of original irritation, and that the cause by which this action of nervimotion is produced must be some internal uninterrupted agency. This was, after much curious investigation, determined by the author to exist neither in the pith nor in the bark, nor even in the cellular tissue filled with nervous corpuscles, and on which he supposes the locomotion of the swelling at the base of the petioles to depend. It is in the ligneous part of the central system in certain tubes supplied with nervous corpuscles, and serving for the transmission of sap, that Dr. Dutrochet believes he has found the true seat of nervimotion, which he attributes to the agency of the sap alone, while he considers the power of locomotion to depend upon the nervous corpuscles alone.

Some few species of the Mimosa may be preserved in a warm inhabited room; but they are mostly kept in a stove, and few of them will bear the open air even in summer. Like human beings, they are more sensitive in proportion to the tenderness of the nursing: like them, by living hardily, they may be fitted to bear the common chances of life. In the plant, this nervous sensibility is encouraged for its singularity.

If the roots shoot through the pot at the bottom, the plant should be turned out, the roots be pared close, and then replaced in the same pot, or a larger, if necessary; but they do not thrive so well in large pots. Great caution must be observed in watering them; they must have little water at a time, but must not be suffered to remain quite dry.

Many persons have endeavoured to ascertain the cause of the sensibility of these plants, but it has never yet been clearly explained. The degree varies in the different kinds: some will only contract their leaves on being touched; others will bend and recede, as it were courteously to acknowledge your approach, as that which is termed the Humble-plant.

> ——————"that courteous tree
> Which bows to all who seek its canopy."
> T. Moore.
>
> "Looke as the Feeling-plant, which learned swaines
> Relate to growe on the East Indian plaines,
> Shrinkes up his dainty leaves if any sand
> You throw thereon, or touch it with your hand."
> W. Browne.

Miller, in one of the earlier editions of his Dictionary, speaks of a Calabrian philosopher who was driven mad by considering the mysterious nature of this plant: "Just," continues he, "as Aristotle is said to have flung himself headlong into the sea, because he could not comprehend the ebbing and flowing thereof."

When any of the upper leaves are touched, if in falling they touch those below them, these also will contract and fall; so that by touching one another, they will continue to fall for some time. Mimosas are very common in the woods of Brazil: of one of the species, of which the wood is very light, the Indians make their canoes.

The thorns of some of the Mimosas are very long, and are called, by the inhabitants of the Cape, Dornbush, or Thornbush. Latrobe speaks of one with which many parts of the country were nearly covered, with "thorns from four to six inches long, placed two and two, in an angle of ninety degrees; out of the inner centre of which proceeds, from a bud, a number of small pinnated leaves, resembling the acacia."

Elephants are often traced by means of these bushes, of which they eat both the leaves and roots; they tear them up, and place them on their crowns, and leave the bare shrubs in that position. The thorns are sometimes very troublesome to travellers, where they grow pretty closely together. There is a thorny shrub often found growing among the Thornbushes of the Cape, which catches the stockings, or some other part of the dress, and is not disentangled without some patience. The natives call it *wach en beetgen*, Stop a little. Some of the thorns, lying very low, tear away the shoe-strings; others, less innocent in their mischief, tear away the skin.

During the day-time the leaf-stalks of the mimosa are observed to form an acute angle with the upper part of the stem or branch to which they are attached, and the sub-leaflets spread out so as to lie nearly in one plane. At night the leaf-stalks become depressed, and the sub-leaflets folded; this change occurs about sunset; and the opposite one, when the leaflets diverge and throw open their sub-leaflets, takes place at day-break.

The Sensitive Plant signifies *Timidity*.

Siphocampylus revolutus

SIPHOCAMPYLUS REVOLUTUS.—REVOLUTE SIPHOCAMPYLUS.

Class V. PENTANDRIA.——Order I. MONOGYNIA.

Natural Order, LOBELIACEÆ.

The name of this plant is derived from σιφων a tube, and καμπυλος curved, because the tube of the corolla is bent.

Character of the Genus, Siphocampylus. Calyx with an obconical top-shaped or hemispherical tube, adhering to the ovarium, the limb being free and quinquefid. Corolla inserted into the top of the calyx tube, tubular, with an entire incurved or rarely straight tube, the segments of the five-cleft bilabiate limb subequal, or the two upper slightly longer. Stamens five, inserted along with the corolla; filaments and anthers, of which the two lower, or the whole, are bearded or mucronate at the apex, connate. Ovary inferior, slightly superior at the apex, bilocular. Ovula numerous, upon somewhat fleshy placentæ attached to each side of the dissepiment, anatropous. Style included; stigma exserted, two-lobed, lobes divaricated, round. Capsule bilocular, free at the apex, loculicidal, bivalvular. Seeds very numerous, minute, scrobiculate. Embryo in the axis of fleshy albumen, orthotropous, radicle towards the umbilicus.

Description of the species, *Siphocampylus Revolutus*. Stem erect, round, sparingly branched, branches zigzag, villous, green. Leaves alternate, on short stout channelled petioles, rigid, wrinkled, spreading wide, dark green and rough, with very short hairs above, lighter and villous below, cordato-ovate, acuminate, the apex of the upper ones revolute, the edges reflexed, simply dentate; middle rib and veins very prominent below, channelled above. Peduncles solitary, axillary, erect, half as long as the leaves, villous, without bracts. Calyx green, villous; tube turbinato-hemispherical, with 10 strong ribs, and as many round glands between the apices of these; limb 5-partite, segments twice as long as the tube, subulate, diverging at the apex. Corolla five times as long as the calyx, purplish red; tube entire, slightly deflexed, contracted at the throat, and for a space equal to the length of the calyx segments at the base, where it is deeply marked by five grooves, in the centre inflated and compressed laterally; limb five partite, segments subequal, linear-lanceolate, acute, slightly hairy within, the two upper straight and paler within, the lateral ones spreading or reflexed, slightly falcate downwards, the lowest revolute, and, as well as the lateral ones, nearly white. Stamens as long as the corolla; filaments inserted along with this into the top of the calyx, adhering to the tube as far up as the extent of the contracted portion at the base, above this uniting into a tube, red and glabrous; anthers lead-coloured, cohering into a curved tube, the two lower bearded and white hairs at the apex, the three upper having a very few similar hairs in their commissures. Style encased by the stamens, projecting beyond the anthers, glabrous, red. Stigma of two blunt, revolute lobes. Germen inferior, green, glabrous, and with a free conical apex, bilocular. Ovules very numerous, small, on large central placentæ.

Popular and geographical notice. This beautiful genus is entirely American, and scarcely passes without the tropics, but is found on both sides of the line. I do not know from what part the seeds of the present species were introduced. It is a true example of the genus, and altogether unlike the plants known in cultivation as Siphocampylus bicolor (t. 139) and S. Cavanillesii (t. 234), which are true Lobelias.

Introduction; where grown; culture. Seedling plants were received at the Garden of the Caledonian Horticultural Society, from Mr. Low, of Clapton, in September, 1839. They grew to the height of five feet in 1840, in the stove, without flowering; cuttings were formed, these rooted readily, and, when of a small size, flowered in February, 1841. We possess the plant at the Botanic Garden, also from Mr. Low. It is kept in the Greenhouse, and is very healthy, but has not yet come into flower. It requires no particular soil or treatment.

For the following passages we are indebted to the agreeable Essays, published by the late Charles Lamb, under the signature of "Elia." The reader must forgive one or two of the author's expressions; which probably he would scarcely have defended himself in his more serious moment.

New Year's Eve. Every man hath two birth-days: two days, at least, in every year, which sets him upon revolving the lapse of time, as it effects his mortal duration. The one is that which in an especial manner he termeth *his*. In the gradual desuetude of old observances, this custom of solemnizing our proper birth-day hath nearly passed away, or is left to children, who reflect nothing at all about the matter, nor understand any thing in it beyond cake and orange. But the birth of a new year is of an interest too wide to be pretermitted by king or cobbler. No one ever regarded the first of January with indifference. It is that from which all date their time, and count upon what is left. It is the nativity of our common Adam.

Of all sound of all bells (bells, the music nighest bordering upon heaven,) most solemn and touching is the peal which rings out the old year. I never hear it without gathering up of my mind to a concentration of all the images that have been diffused over the past twelvemonth; all I have done or suffered, performed or neglected in that regretted time. I begin to know its worth, as when a person dies. It takes a personal colour; nor was it a poetical flight in a contemporary, when he exclaimed:—

I saw the skirts of the departing year.

It is no more than what in sober sadness every one of us seems to be conscious of, in that awful leave-taking. I am sure I felt it, and all felt it with me last night; though some of my companions affected rather to manifest an exhilaration at the birth of the coming year, than any very tender regrets for the decease of its predecessor. But I am none of those who—

Welcome the coming, speed the parting guest.

I am naturally, before-hand, shy of novelties; new books new faces, new years,—from some mental twist which makes it difficult in me to face the prospective. I have almost ceased to hope; and am sanguine only in the prospects of other (former) years. I plunge into fore-gone visions and conclusions. I encounter pell-mell with past disappointments. I am armour proof against old discouragements. I forgive, or overcome in fancy, old adversaries. I play over again *for love*, as the gamesters phrase it, games for which I once paid so dear. I would scarce now have any of those untoward accidents and events of my life reversed. I would no more alter them than the incidents of some well-contrived novel. Methinks it is better that I should have pined away seven of my goldenest years, when I was thrall to the fair hair, and fairer eyes, of Alice W———n, than that so passionate a love-adventure should be lost. It was better that our family should have missed that legacy, which old Dorrell cheated us of, than that I should have at this moment two thousand pounds *in banco*, and be without the idea of that specious old rogue.

In a degree beneath manhood, it is my infirmity to look back upon those early days. Do I advance a paradox, when I say, that, skipping over the intervention of forty years a man may have leave to love *himself*, without the imputation of self love?

If I know ought of myself, no one whose mind is introspective—and mine is painfully so—can have a less respect for his present identity, than I have for the man Elia. I know him to be light, and vain, and humoursome; averse from counsel, neither taking it, nor offering it;—a stammering buffoon; what you will; lay it on, and spare not; I subscribe to it all, and much more than thou canst be willing to lay to his door—but for the child Elia—that "other me," there, in the back ground—I must take leave to cherish the remembrance of that young master—with as little reference, I protest, to this stupid changeling of five and forty, as if it had been a child of some other house, and not of my parents. I can cry over its patient small-pox at five, and rougher medicaments. I can lay its poor fevered head upon the sick pillow at Christ's, and wake with it in surprise at the gentle posture of maternal tenderness hanging over it, that unknown had watched its sleep. I know how it shrank from any the least colour of falsehood. God help thee Elia, how art thou changed! Thou art sophisticated. I know how honest, how courageous (for a weakling) it was—how religious, how imaginative, how hopeful! From what have I not fallen, if the child I remember was indeed myself, and not some dissembling guardian, presenting a false identity, to give rule to my unpractised steps, and regulate the tone of my moral being. The elders, with whom I was brought up, were of a character not likely to let slip the sacred observance of any old institution; and the ringing out of the old year was kept by them with circumstances of peculiar ceremony. In those days the sound of those midnight chimes, though it seemed to raise hilarity in all around me, never failed to bring a train of pensive imagery into my fancy. Yet I scarce conceived what it meant, or thought of it as a reckoning that concerned me. Not childhood alone, but the young man till thirty, never feels practically that he is mortal. He knows it indeed, and, if need were, he could preach a homily on the fragility of life; but he brings it not home to himself, any more than in a hot June we can appropriate to our imagination the freezing days of December. But now, shall I confess a truth? I feel these audits but too powerfully. I begin to count the probabilities of my duration and grudge at the expenditure of moments and shortest periods, like miser's farthings. In proportion as the years both lessen and shorten, I set more count upon their periods, and would fain lay my ineffectual finger upon the spoke of the great wheel. I am not content to pass away "like a weaver's shuttle." Those metaphors solace me not, nor sweeten the unpalatable draught of mortality. I care not to be carried with the tide, that smoothly bears human life to eternity; and reluct at the inevitable course of destiny. I am in love with the green earth; the face of town and country; the unspeakable rural solitudes, and the sweet security of streets. I would set up my tabernacle here. I am content to stand still at the age to which I am arrived; I and my friends: to be no younger, no richer, no handsomer.

Galanthus nivalis

GALANTHUS NIVALIS.——THE SNOWDROP.

CLASS VI. HEXANDRIA.—ORDER, I. MONOGYNIA.

NATURAL ORDER, AMARYLLACEÆ.——THE AMARYLLIS TRIBE.

GALANTHUS NIVALIS, Snow-drop, or Fair maids of February. Calyx an oblong spathe, gaping; corolla, three oblong concave petals; a cylindrical three-leaved nectary, with the leaflets petal-shaped and notched; stigma simple; the bulb coated and truncate, flowers milk white, solitary, pendulous; nectary with a green spot, and yellowish green lines. Snow-drop roots taken up in winter and boiled, have the insipid mucilaginous taste of the Orchis, and if cured in the same manner, would probably make as good salep. Gmelin, in his history of Siberia, says, the Martagon Lily, whch is of the same natural order as the snow-drop, makes a part of the food of that country. By cultivation, the snow-drop becomes double, but this metamorphosis does not improve the native elegance of this universal favourite. Among the innumerable effusions which this simple flower has inspired, none is more beautifully descriptive than the well-known verses of Mrs. Barbauld:—

"Already now the Snow-drop does appear,
The first pale blossom of the unripen'd year;
As Flora's breath by some transforming power,
Had changed an icicle into a flower:
Its name and hue the scentless plant retains
And winter lingers in its icy veins."

This "Morning Star of Flowers" pure as the spotless drift from which it seems to take its rise, was dedicated by the Romish church to the purification of the Virgin Mary.

"The flower that first in the sweet garden smil'd,
To virgins sacred:"—

has also been deemed the emblem of consolation, as if by its earliest revival from the death-like repose of winter, cheering mortal man with the assurance of re-animation:

Then, spirit flower, I'll pluck thy bell,
An offering for my breast;
And when ills come or passions swell,
Thy prophet flowers each storm shall quell
And give it promis'd rest.

The characteristic of the snow-drop, which gives it a peculiar grace, and has made it a universal favourite is, that it is the first flower which greets the opening year, and is seen to peep out amid the snows of February.

But why so far excursive? when at hand,
Along these blushing borders, bright with dew,
And in yon mingled wilderness of flowers,
Fair-handed Spring, unbosoms every grace;
Throws out the Snow-drop, and the Crocus first;
The Daisy, Primrose, Violet darkly blue,
And Polyanthus of unnumbered dyes;
The Yellow Wallflower, stained with iron brown;
And lavish Stock that scents the garden round.
THOMSON.

In Tickell's poem of Kensington Garden, Kenna, a young fairy, falls in love with Albion, a mortal, but her lover is killed by Azuriel, a prince of fairy birth. Kenna pours the juice of a mystic plant upon the lifeless body of Albion, and changes it into a snow-drop.

An herb there grows, (the same old Homer tells
Ulysses bore to rival Circe's spells)
Its root is ebon-black, but sends to light
A stem that bends with flowerets milky white;
Moly the plant, which gods and fairies know,
But secret kept from mortal men below;
On his pale limbs its virtuous juice she shed,
And murmured mystic numbers o'er the dead;
When lo! the little shape by magic power
Grew less and less, contracted to a flower,
A flower that first in this sweet garden smiled,
To virgins sacred, and the Snow-drop styled.
The new-born plant with sweet regret she viewed,
Warmed with her sighs, and with her tears bedewed,
Its ripened seeds from bank to bank conveyed,
And with her lover whitened half the shade:
Thus won from death, each spring she sees him grow,
And glories in the vegetable snow;
Which now increased through wide Britannia's plains
Its parent's warmth and spotless name retains;
First leader of the flowery race aspires,
And foremost catches the sun's genial fires;
Mid frosts and snows, triumphant, dares appear,
Mingles the seasons and leads on the year.

Lone flower, hemmed in with snows, and white as they,
But hardier far, once more I see thee bend
Thy forehead, as if fearful to offend,
Like an unbidden guest. Though day by day,
Storms, sallying from the mountain-tops, way-lay
The rising sun, and on the plains descend;
Yet art thou welcome, welcome as a friend
Whose zeal outruns his promise! Blue eyed May

Shall soon behold this border thickly set
With bright jonquils, their odours lavishing
On the soft west-wind and his frolic peers;
Nor will I then thy modest grace forget,
Chaste Snow-drop, venturous harbinger of Spring,
And pensive monitor of fleeting years!

WORDSWORTH.

Thou first-born of the year's delight,
Pride of the dewy glade;
In vernal green and virgin white,
Thy vestal robes, arrayed;

'Tis not because thy drooping form
Sinks graceful on its nest,
When chilly shades from gathering storm,
Affright thy tender breast;

Nor for yon river inlet wild,
Beneath the willow spray,
Where like the ringlets of a child,
Thou weav'st thy circle gay;

'Tis not for these I love thee dear—
Thy shy averted smiles,
To fancy bode a joyous year,
One of life's fairy isles.

They twinkle to the wintry moon
And cheer th' ungenial day,
And tell us, all will glisten soon
As green and bright as they.

KEEBLE.

Although the snowdrop is found growing in woods and pastures in very many places throughout the British islands, Sir W. J. Hooker says, in his British Flora, that it is "scarcely indigenous." The snowdrop, to the best of our recollection, is not mentioned by Shakspeare or Milton, which adds to the probability that it is one of the numberless garden plants which have escaped from their confinement, to add new beauties to the groves and meadows. Many more it is to be hoped are undergoing the same emancipation. Thus Mr. Irvine in his London Flora, gives amongst others the following exotics as apparently naturalized: Valeriana calcitrapa; Cannabis sativa (hemp); Geranium striatum; Linaria purpurea (purple toad-flax); Momordica Elaterium (wild cucumber); Eranthis hiemalis (winter aconite); Petasites odorata; Trifolium incarnatum and T. agrarium; and several narcissi. Mr. Irvine also says "Collomia grandiflora, and several Gillias, have been gathered in places where they were not sown, and are likely soon to be well established, as naturalized exotics." He adds, shortly afterwards, "A considerable portion of these exotic plants are as truly the spontaneous gowth of the neighbourhood of London, as Datura Stramonium, Borago officinalis, and other reputed British species."

We have often thought that it would be an agreeable employment for ladies and others in the country to plant the seeds of hardy foreign flowers in our fields and hedge-rows, and thus give still more of a garden look to the face of England.

"La Perce-neige fut une fleur de la guirlande de Julie. Benserade en fit le vers que voici; c'est la perce-neige qui parle:

Sous un voile d'argent la terre ensevelie,
Me produit; malgré sa fraicheur,
La neige conserve ma vie,
Et me donnant son nom, me donne sa blancheur;

Mais celle de ton sein, adorable Julie,
Me fait perdre aux yeux éblouis
La gloire, désormais ternie,
Que je ne cédois pas au lis.

La Guirlande de Julie fut une galanterie ingénieuse, imaginée par l'austère duc de Montausier, pour la belle Julie de Rambouillet. Lorsque sa main lui fut promise, il devoit, suivant un ancien usage, qui s'observe encore aujourdhui, envoyer tous les matins à sa future épouse jusqu'au jour de la noce, un bouquet des plus belles fleurs de la saison; mais il ne s'en tint pas là: il fit peindre, en outre (par les meilleurs peintres,) sur du velin, dans un livre in-folio, magnifiquement relié, les plus belles fleurs cultivées, et tous les poètes les plus distingués de ce temps se distribuèrent ces fleurs, et firent des vers sur chacune. Le grand Corneille fit la fleur d'orange et l'immortelle; mais ces vers de société ne sont pas dignes d'être stignés par un si beau nom. Julie, le jour de son mariage, trouva sur sa toilette ce livre si précieux. Ce monument intéressant de la galanterie du dix-septième siècle, passé dans des mains ètrangéres (sans doute par les malheurs de la révolution), se trouvoit transporté à Hambourg dans l'année 1795, et il etoit en vente. On ignore quelle est la personne qui en a fait l'acquisition."

La Botanique Historique et Littéraire par Madame de Genlis.

Oxalis Acetosella.

OXALIS ACETOSELLA.—COMMON WOOD-SORREL.

Class X. DECANDRIA.—Order V. PENTAGYNIA.

Natural Order, OXALIDEÆ.—THE WOOD-SORREL TRIBE.

Fig. (*a*) shows the petals spread; (*b*) the styles; (*c*) the stamens.

This delicate creeping plant is very generally found throughout Europe. It is a perennial, growing in moist shady woods, and producing its flowers in April and May.

The rhizoma is horizontal, and consists of several fleshy reddish scales, connected by a thread. The leaves are ternate, on long, hairy, radical, purplish footstalks; with the leaflets obcordate and entire, drooping in the evening, of a yellowish-green colour, and purplish underneath. The scape, or flower-stalk, is about four inches high, slender, furnished with a pair of opposite bracteas, placed considerably below the flower, which is bell-shaped, drooping, of a delicate white or pale flesh-colour, and streaked with purplish veins. The calyx is cut into five, acute, ovate segments; petals five, obovate, spreading; filaments capillary, with oblong, furrowed, incumbent anthers; germen ovate, with five thread-shaped styles, and obtuse, downy stigmas. The capsule is 5-celled, membranous, and containing two seeds in each cell, and inclosed within an elastic arillus, by the bursting of which they are thrown out.

This plant is called by old Gerarde, wood sour, sour trefoil, stub-wort, and sorrel du bois; by herbalists, alleluya, and cuckoo's meat, "by reason when it springeth forth and flowereth, the cuckoo singeth most; at which time also alleluya was wont to be sung in churches." The names, Alleluya and Lujula, appear, however, to be corrupted from the Calabrian, *Juliola*.

Qualities and Chemical Properties.—Wood sorrel is inodorous, but possesses a very agreeable and refreshing acid taste. Twenty pounds of the fresh plant yielded to Neuman six pounds of juice, from which he got two ounces, two drams, and one scruple of the bin-oxalate of potash; and two ounces, six drams of an impure saline mass.

The bin-oxalate of potash is one of the three sub-species of oxalate of potash, and exists ready formed in Oxalis *Acetosella*, Oxalis *corniculata*, and different species of Rumex, from which it is extracted in some parts of Europe in large quantities. Hence it is known by the name of salt of wood-sorrel, and in this country is sold as essential salt of lemons, mixed with an equal quantity of cream of tartar. It is mentioned by Duclos in the Memoirs of the French Academy for 1668. Marcgraaf proved that it contained potass; and Scheele discovered its acid to be the oxalic. It may be formed, as Scheele has shown, by dropping potash very gradually into a saturated solution of oxalic acid in water: as soon as the proper quantity of alkali is added, the bin-oxalate is precipitated. But care must be taken not to add too much alkali, otherwise no precipitation will take place at all.

Medical Properties and Uses.—The leaves of this plant are among the most grateful of the vegetable acids. The juice of sorrel is sometimes used as an agreeable refreshing drink in fevers, and the leaves boiled in milk form a pleasant whey: but the other vegetable acids are quite as useful and more available: beaten up with fine sugar, the leaves make a refreshing and wholesome conserve; "its flavour resembling green tea." The leaves in a recent state form a good salad for the scorbutic, and have been employed with advantage as an external application to scrofulous ulcers.

The *Oxalides*, says Professor Burnett, are acid and slightly astringent plants, especially *O. Acetosella*, which contains that peculiar and powerful acid, the Oxalic, to which it has given its name. This plant was formerly used in medicine, being made into a confection called *Conserva Luzúlæ*. Twenty pounds of wood-sorrel leaves yield six pounds of juice, from which two ounces six drachms of impure salt may be obtained. Since, however, Scheele discovered that oxalic acid may be formed by acting on sugar with nitric acid, his process, being far the most economical, has entirely superseded its extraction from the plant. *Oxalic acid* mixed with cream of tartar is sold under the name of salt of lemons, to flavour sauces, and to remove ink-spots and iron-moulds.

The following passage is from the agreeable pen of Charles Lamb:—

Not many sounds in life, and I include all urban and all rural sounds, exceed in interest a *knock at the door*. It "gives a very echo to the throne where hope is seated." But its issues seldom answer to this oracle within. It is so seldom that just the person we want to see comes. But of all the clamorous visitations the welcomest in expectation is the sound that ushers in, or seems to usher in, a Valentine. As the raven himself was hoarse, that announced the fatal entrance of Duncan, so the knock of the postman on this day is light, airy, and confident. It is less mechanical than on other days; you will say, "That is not the post, I am sure." Visions of love, of cupids, of hymens, and all those delightful eternal common-places, which "having been will always be;" which no school-boy nor school-man can write away; having their

irreversible throne in the fancy and affections; what are your transports, when the happy maiden, opening with careful finger, careful not to break the emblematic seal, bursts upon the sight of some well-designed allegory, some type, some youthful fancy, not without verses

Lovers all,
A madrigal,

or some such device, not over abundant in sense—young love disclaims it,—and not quite silly—something between wind and water, a chorus where the sheep might almost join the shepherd, as they did, or as I apprehend they did, in Arcadia.

All Valentines are not foolish, and I shall not easily forget thine, my kind friend (if I may have leave to call you so) E. B.—E. B. lived opposite a young maiden, whom he had often seen, unseen, from his parlour window in C—e-street. She was all joyousness and innocence, and just of an age to enjoy receiving a valentine, and just of a temper to bear the disappointment of missing one with good humour. E. B. is an artist of no common powers; in the fancy parts of designing, perhaps inferior to none; his name is known at the bottom of many a well-executed vignette in the way of his profession, but no further; for E. B. is modest, and the world meets nobody half-way. E. B. meditated how he could repay this young maiden for many a favour which she had done him unknown; for, when a kindly face greets us, though but passing by, and never knows us again, nor we it, we should feel it as an obligation; and E. B. did. This good artist set himself at work to please the damsel. It was just before Valentine's day, three years since. He wrought unseen and unsuspected a wonderous work. We need not say it was on the finest gilt paper with borders—full, not of common hearts and heartless allegory, but all the prettiest stories of love from Ovid, and older poets than Ovid (for E. B. is a scholar.) There was Pyramus and Thisbe, and besure Dido was not forgot, nor Hero and Leander, and swans more than sang in Cayster, with mottoes and fanciful devices, such as beseemed,—a work in short of magic. Iris dipt the woof. This on Valentine's eve he commended to the all-swallowing indiscriminate orifice—(O ignoble trust!)—of the common Post; but the humble medium did its duty, and from his watchful stand, the next morning, he saw the cheerful messenger knock, and by and by the precious charge delivered. He saw, unseen, the happy girl unfold the Valentine, dance about, clap her hands, as one after one, the pretty emblems unfolded themselves. She danced about, not with light love, or foolish expectations, for she had no lover; or, if she had, none she knew that could have created those bright images which delighted her. It was more like some fairy present; a God-send, as our familiarly pious ancestors termed a benefit received, where the benefactor was unknown. It would do her no harm. It would do her good for ever after. It is good to love the unknown. I only give this as a specimen of E. B. and his modest way of doing a concealed kindness.

In towns, says William Howitt, it is a cheering sight, even while all without is frosty and wintry, to see, as we pass, in cottage windows, tufts of crocuses and snowdrops flowering in pots; and in those of wealthier dwellings, hyacinths, narcissi, &c. in glasses, displaying their bulbs and long fibrous roots in the clear water below, and the verdure and flowery freshness of summer above. It is a sight truly English. It is in accordance with our ideas of home-comfort and elegance. If we are to believe travellers, in no country is the domestic culture of flowers so much attended to as in this. I trust this will always be a prevailing taste with us. There is something pure and refreshing in the appearance of plants in a room; and watched and waited on as they are generally, by the gentler sex, they are links in many pleasant associations. They are the cherished favourites of our mothers, wives, sisters, and friends not less dear; and connect themselves in our mind with their feminine delicacy, loveliness, and affectionate habits and sentiments.

The Wood-sorrel, says the author of "The Sentiment of Flowers," vulgarly called "cuckoo's bread," flowers very freely about Easter. This pretty little plant shuts its leaves, closes its corollas, and the flowers hang pendant and drooping from the stems. They seem to yield themselves to sleep; but at the first dawn of day we may say that they are filled with joy, for they throw back their leaves, and expand their flowers: and we doubt not it is on this account that peasants have said that they sing the praises of their Creator.

"The Sorrels," says Gerarde, "are moderately cold and dry."

The Wood-sorrel is the emblem of *Joy*.

Fragaria Collina.

FRAGARIA COLLINA.—THE ALPINE STRAWBERRY.

CLASS XII. ICOSANDRIA.—ORDER III. POLYGYNIA.

NATURAL ORDER, ROSACEÆ.——THE ROSE TRIBE.

STOLONIFEROUS leaflets plicate, thin, silky above, pilose beneath, native of Switzerland and Germany. Flowers white. Fruit green. Perhaps only a variety of Fragaria vesca.

The English name strawberry, is believed by some persons to have reference to an old custom lately re-introduced, of putting straw underneath the plant to prevent the fruit being soiled; but it is more probably a corruption of stray-berry, from the trailing or wandering of its runners which travel to great distances from the parent plants, and establish colonies all around. The word is written strawberry by John Lydgate, who died in 1483, in his poem called "London Lyckpenny."

Strawberries have long been cultivated to a great extent in the neighbourhood of London, and even in what is now the heart of the metropolis. The fact has been mentioned by Hollinshed, and dramatized by Shakspeare, that Glo'ster, when contemplating the death of Hastings, asked the Bishop of Ely for strawberries:

"My lord of Ely, when I was last in Holborn,
I saw good strawberries in your garden there."

"The Alpine Strawberry," says Mr. Keen of Isleworth, "must always be raised from seed, which should be sown in a bed of rich earth in spring. When the plants are of a proper size, which will be in July or August, I plant them in rows at the back of hedges, or walls, in a rich or in a very moist soil. The rows should be two feet apart, and the distance from plant to plant in the rows twelve inches. My Alpines, thus managed, bear most abundantly, so much so that in gathering them there is not room for the women to set their feet without destroying many. The Alpines differ from all other strawberries in quickness of bearing, for no other sort, sown in the spring of the year, will produce fruit under two years, whereas this yields a crop at the end of one year. Its duration with me seldom exceeds two years."

Don's System of Gardening and Botany.

A great variety of Strawberries is now cultivated, and there has been much confusion and dispute concerning the species to which these varieties should be referred. Generally speaking, however, it may be said that *Fragaria vesca* affords the scarlet and wood strawberries; *F. collina* the European pine, or alpine strawberries; *F. elatior* the hautbois; *F. virginiana* the exotic scarlets; *F. grandiflora* the exotic pines; and *F. Chilensis* the chili strawberries. How far the several species of Fragaria enumerated by botanists, may, in reality, be reducable to two or three, is not yet determined.

An account of the strawberries which have been reared in the gardens of the Horticultural Society has been published by Mr. J. Barnet in the sixth volume of the transactions of the Society. He divides them into—1. Scarlet strawberries.—2. Black strawberries.—3. Pines.—4. The Chili strawberries.—5. The Hautbois.—6. Green strawberries.—7. Alpine and wood strawberries. We subjoin an account of some of the more remarkable varieties, for which we are indebted to Mr. Barnet's paper.

THE OLD SCARLET STRAWBERRY.—This which has been an inhabitant of our gardens nearly, if not fully, two hundred years, was doubtless an original introduction from North America. It is singular that a kind of so much excellence, as to be at present scarcely surpassed by any of its class, should have been the first known. It continued in cultivation considerably more than half of the period of its existence as a garden fruit, without any variety being produced of it either by seed or by importation from America.

This Strawberry has long continued to hold its station in public estimation; it is deservedly a favourite, being considered by many the best and most useful variety, and it will probably not be put aside by any of the new productions. It has peculiar merit with the confectioners from imparting to cream, either for ice or other purposes, its flavour, which possessing much acidity, is brought out by sugar. It is equally good for water ices, and makes excellent preserves, though its colour in jam is inferior to that of some others. There are now not less than twenty-six varieties of the scarlet strawberry cultivated in England.

Wilmot's late Scarlet Strawberry.—Was raised by Mr. John Wilmot, of Isleworth, about the year 1815, specimens of the fruit were first exhibited to the Horticultural Society in 1817.

It is a good bearer, ripening late enough to succeed the old scarlet, and producing its berries in succession so as to afford a continual supply. The fruit is very large, bluntly conical, irregularly shaped, shining light red; the seeds are small, deeply imbedded; the intervals ridged; the flesh white; hollow in the centre; the flavour moderate.

The Old Black Strawberry, has been long known, but is now neglected in consequence of its unproductiveness. The Downton strawberry, which was raised from a seed of Knight's large scarlet, impregnated by the pollen of the old black strawberry, is now in very general cultivation, and the fruit has a very fine flavour.

The Pine Strawberry, presents numerous varieties, of which the *Old Pine*, long an inhabitant of our gardens, is the best. Indeed, although its flavour is less powerful than that of the old black, and less aromatic than that of the hautbois, it is on the whole the finest of all strawberries. A singular variety of this, produced by Mr. J. Wilmot in 1820, is named the *Black Prince Strawberry*. The dark and polished surface of its fruit gives it an appearance entirely unlike any other strawberry yet known.

The Chili Strawberry, originally a native of South America, has been cultivated in Europe for more than a century. The true Chili strawberry has not much to recommend it, but the yellow variety of it grown by Mr. Williams, and that called Wilmot's superb strawberry, show that very fine fruit may be expected from this stock.

Wilmot's Superb Strawberry, was raised by Mr. John Wilmot, of Isleworth, in 1821, from the seed of the true Chili, and the pollen of the Roseberry. It appears to be an abundant bearer, ripening late in the season, after the Old Pine, and in succession, so as to afford a lengthened supply. The first fruits are very large, irregularly rounded, ovate or flat turned, sometimes growing of a cock's comb shape; the other berries are invariably round, all are hairy, pale scarlet, appearing as if polished, the seeds projecting, brown; the flesh very firm, pale scarlet next the outside, within whitish, with a small hollow in the centre, and a core. Flavour very good, buttery and rich, mixed with acid. This is a Strawberry of good promise; the fruit is very beautiful and of extraordinary size. One that Mr. Barnet had an opportunity of examining measured six inches and a half in circumference.

The Hautbois Strawberry, has about five varieties, of which that styled the *prolific*, or *conical*, is the most esteemed.

The *Fragariæ*, are subject to *Uredo fragariæ*, "in roundish dots, on the under side the leaves; bright yellow, changing to brown."—Besides the discolouration on either surface of the leaves, principally occasioned by fungi or insects, spots are often apparent, generally of a dark hue, and not unfrequently observable on different kinds of strawberry plants, for which no such origin can be detected. A probable cause of these appearances was many years ago suggested to me by my late very ingenious and learned friend Professor Robinson, who conjectured that they were in most instances produced by the power of the sun acting upon globular drops of dew, or perhaps sometimes of rain, as through a burning lens, the rays becoming thus so concentrated as to incinerate, more or less, the portion affected. In a recent publication we observe something like the same hypothesis propounded.—Dr. Mason Good, in his "Book of Nature," remarks, "among animals, some are locomotive or migratory, and others stationary or permanent, (including the zoophitic order,) though the greater number may be migratory. Plants are, on the contrary, for the most part stationary, yet many are fairly entitled to be regarded as locomotive or migratory, of which the genus Fragaria affords examples; as do the palmate, the testicular, and the premorse rooted tribes offer similar proofs. Many of these grow from a new bulb or knob, or radicle, while the old root dies away; we may therefore conclude that the vital principle of the plant has quitted an old dilapidated, and ruinous mansion, to take possession of a new one." And thus several of the Orchidiæ, or *Scabiosa succisa*, may sometimes be traced in their change of position across half an acre.

Strawberries, either eaten alone, or with cream and sugar, are universally esteemed as a delicious fruit. They are grateful, cooling, sub-acid, juicy, and have a delightful smell. Taken in large quantities they seldom disagree.

Strawberries are said to promote perspiration, and dissolve the tartarous incrustations upon the teeth, they were formerly recommended in gouty and calculous affections; and Hoffman says, he has known consumptive patients cured by them.

The bark of the root is astringent. Sheep and goats eat it. Cows are not fond of it. Horses and swine refuse it.

Saccharum officinarum?

SACCHARUM OFFICINARUM.—COMMON SUGAR-CANE.

Class III. TRIANDRIA.—Order II. DIGYNIA.

Natural Order, GRAMINEÆ.——THE GRASS TRIBE.

Fig. (*a*) is intended to represent the entire plant reduced. (*b*) A flower magnified. (*c*) The same closed. (*d*) A portion of the panicle, with the flowers of the natural size.

The Sugar-cane, which is supposed to be a native of the East Indies, though now introduced into the tropical parts of the western continent, and the West India islands, is one of the most valuable in a commercial point of view, as well as one of the most beautiful productions of the vegetable kingdom. The Chinese date the cultivation of this precious plant from periods of the most remote antiquity: but Dr. Roxburgh ascertained that the sugar-cane of China was different from the *S. officinarum*, and he has published it as the *S. Sinense*. That the sugar-cane is indigenous to the south-eastern parts of Asia, we have the strongest reason to believe, for Marco Polo, a noble Venetian, who travelled in the East, about the year 1250, found sugar in abundance in Bengal. Vasco de Gama, who doubled the Cape of Good Hope in 1497, relates that a considerable trade in sugar was then carried on in Calicut. From the East Indies, the sugar-cane was carried, towards the close of the thirteenth century, to Arabia, whence the cultivation of it soon extended to Nubia, Egypt, and Æthiopia. Mr. Bruce found it in Upper Egypt; and John Lioni says, that a considerable trade was carried on in sugar in Nubia, in 1500; it abounded also at Thebes, on the banks of the Nile, and in the northern parts of Africa about the same period.

The root of the sugar-cane is perennial, jointed, solid; and fibrous; sending up several simple, erect, round, smooth, leafy, jointed stems, to the height of ten or twelve feet. At each articulation of the stem is a double or triple row of deep greenish punctures. The leaves are three or four feet long, and three inches broad, linear-lanceolate, and arise singly from the joints, embracing the stem at the base to the next joint above their insertion: they are smooth, spreading, entire, flat; with the midrib prominent on the under side, the edges sharply toothed, and ciliated near the base with rigid white hairs. The flowers are small, and produced in a terminal loose panicle, about two feet in length, composed of numerous subdivided whorled spikes, with long flexuose down which conceals the flowers, and gives to the plant a very elegant appearance.* The flowers are all hermaphrodite, and stand in pairs, at the joints of the smaller divisions of the panicle. The calyx is 2-flowered, consisting of two oblong-lanceolate, pointed, erect, concave, nearly equal, beardless glumes, enveloped in long hairs from the base. The corolla is shorter than the calyx, and composed of two very minute, pellucid valves, the innermost very slender. The filaments are three, capillary, longer than the corolla, and bear oblong, yellowish anthers. The germen is ovate, bearing two styles, terminated by brownish feathery stigmas.

It is a remarkable fact, that the sugar-cane in the West Indies never perfects its seeds; the plant being propagated always by cuttings from the roots. Dr. Roxburgh, who resided many years in India, never saw the seed of this plant.

The oldest stock of canes cultivated in the West India islands, is said to have been brought from Spain. "There cannot be a doubt indeed, says Dr. Macfayden, "but that the sugar-cane is not indigenous to any parts of the New World. We are, it is true, informed by the early voyagers and travellers, that canes were found growing wild on the banks of the Mississippi, and other rivers of continental America; and Labat mentions that the first French settlers met with them in Martinique and some of the other islands. It is most probable that they mistook for them some other of the reedy grasses, such as the wild Arundo *sagittata*, or some species of the genus Arundinaria—all of which are common on the banks of rivers in these latitudes, and all, by their appearance and manner of flowering, might readily deceive an inexperienced eye. Besides, were the sugar-cane a native, it would be difficult to account for its being at present found no where in a state of nature."

There are several varieties of the common sugar-cane. Louriero mentions three sorts, differing in the culm, viz. the white sugar-cane, the red sugar-cane, and the elephantine sugar-cane. In Ceylon, there are three varieties, the common, white, and purple. In the Mysore, two kinds of cane are chiefly cultivated, the *testali* and *putta putti*. In the West Indies, the oldest variety is commonly known by the name of the *Country Cane*. It is readily distinguished by its diminutive size, its spindling stem, approximate joints, and

* In the West Indies, the planters commonly assert that the sugar-cane never blossoms; their observations being made on plants cultivated in a most luxuriant soil, where they increase much by root, and are cut before they produce flowers.

narrow grass-like leaves. The *Ribbon Cane* is a variety of inferior quality, and is known by its strong stem and distant joints, marked with longitudinal stripes of purple and yellow. The *Bourbon,* sometimes called the Otaheite Cane, which was first imported into the French islands of Guadaloupe and Martinique, surpasses all other varieties in the thickness of its stem, and is very generally cultivated on account of the greater quantity of sugar which it affords. . It is much taller, and yields one-third more sugar than the country cane; but the sugar is not of such a compact grain. The *Violet Cane,* or as it is called in the French islands, the *Batavian Cane,* which has a purple-coloured stem and luxuriant foliage, has been considered by Roemer and Schultes, as a distinct species, under the name of *S. violaceum.*

The following account of the History of Sugar is by Mr. Galt—

"I was led to investigate the History of Sugar by a casual remark of the late Sir Joseph Banks, one day at breakfast. I forget now how the conversation arose, but he inquired whether I had met with any of the remains of the sugar cane in Sicily, mentioning that it had been previously produced in the island of Crete, but the sugar manufactured in that island was more crystallized than ours, and was called, from the place where it was boiled, sugar of Candi, otherwise sugar Candy, and it seems never to have been prepared better there than in that form.

It is certain, however, that in the year 1148 considerable quantities of the article were produced in the island of Sicily, and the Venetians traded in it; but I have met with no evidence to support the *Essai de l'Histoire du Commerce,* in which the author says that the Saracens brought the sugar-cane from India to Sicily.

"The ancient Greeks and Romans," says Dr. William Douglas, "used honey only for sweetening." And Paulus Ægineta, who calls it cane-honey, says it came originally from China, by the East Indies and Arabia, into Europe. Salmasius says, however, that it had been used in Arabia nine hundred years before. But it is certain that sugar was only used in syrups, conserves, and such like Arabian medicinal compositions, when it was first introduced into the west of Europe; but Mr. Wotton, in his 'Reflexions upon Ancient and Modern Learning,' says that the sugar-cane was not anciently unknown, since it grows naturally in Arabia and Indostan; but so little was the old world acquainted with its delicious juice, that "some of the ablest men," says he, "doubted whether it were a dew like manna, or the juice of the plant itself." It is, however, certain that raw sugar was used in Europe before the discovery of America. Herrera, the ancient historian, observes that sugar grew formerly in Valencia, brought thither by the Moors; from thence it was transmitted to Grenada, afterwards to the Canary Islands, and lastly, to the Spanish West Indies.

About the year 1419, the Portuguese planted the island of Madeira with sugar canes from Sicily; and Giovanni Batero, in an English translation of his book in 1606, on the 'Causes of the Magnificence and Grandeur of Cities,' mentions the excellence of the sugar-cane of Madeira, for which it was transported to the West Indies; and there can be no doubt that Madeira was one of the first islands of the Atlantic Ocean in which this important article was manufactured.

In 1503, two ships arrived at Camperre, laden with sugar from the Canary Islands. As yet, it is said, no sugar canes were grown in America, but soon they were transplanted from those islands to the Brazils.

It was about this time (1503) that the art of refining sugar was discovered by a Venetian, who is said to have realized a hundred thousand crowns by the invention. Our ancestors made use of it as it came in juice from the canes, but most commonly used honey in preference.

From the Brazils and the Canaries, sugar canes were brought and planted in the island of Hispaniola, [St. Domingo, or Hayti,] and in the same year sugar was brought from the Brazils into Europe, The commodity was then very dear, and used only on rare occasions, honey being till then the general ingredient for sweetening of meats and drinks.

When sugar was introduced into this country first is doubtful; but in 1526 it was imported from St. Lucar, in Spain, by certain merchants of Bristol, who brought the article which had been imported there from the Canary Islands.

In the year 1641 the sugar-cane was imported from the Brazils into Barbadoes, and being found to thrive, sugar mills were established. A Colonel James Drax, who began the cultivation with about three hundred pounds, declared that he would never return to England till he had made ten thousand a year; and Colonel Thomas Modyford was still higher in his expectations.

It was from the island of Barbadoes that the slave trade began. The first planters finding such immense profit, induced the merchants at home to send ships with assorted cargoes for the product of the island, but they found it impossible to manage the cultivation of sugar by white people in so hot a climate. The example of the Portuguese gave birth to the negro slave trade, and it flourished till abolished by Act of Parliament; but in that age it was a most flourishing business, and the ports of London and Bristol had the main supply. Barbadoes, in the year 1669, attained its utmost pitch of prosperity. In a pamphlet entitled 'Trade Revived,' it is spoken of as "having given to many men of low degree vast fortunes, equal to noblemen; that upwards of a hundred sail of ships there yearly find employment, by carrying goods and pas-

sengers thither, and bringing thence other commodities, whereby seamen are bred and custom increased, our commodities vended, and many thousands employed therein, and in refining our sugar at home, which we formerly had from other countries."

In 1670 our sugar colonies drew the means of support from what were then our North American colonies, particularly New York, Pennsylvania, and the Jerseys; and the first time that sugar was made subject to taxation at home, was in 1685. Like other merchandize, it was previously subject to a five per cent. poundage.

In 1739, the importation of sugar from the West India Islands was so great, that there was a relaxation of our colonial policy towards them; and they were permitted to carry their sugar to any part south of Cape Finisterre, without being obliged to land them first in Great Britain. From this time sugar has continued to increase, and it is needless to pursue its history further; it was then a great article of trade, and, as an ingredient, the consumption has been continually increasing.

Leigh Hunt, in his commentaries on breakfast in the London Journal, says, "You may make a landscape, if you will, out of your breakfast table, better than Mr. Kirk's picture. Here where the bread stands, is its father, the field of corn, glowing in the sun, cut by the tawny reapers, and presenting a path for lovers. The village church (where they are to be married) is on a leafy slope, on one side, and on the other is a woody hill, with fountains. There, far over the water, (for this basin of water, with island lumps of butter in it, shall be a sea) are our friends the Chinese, picking the leaves of their tea trees,—a beautiful plant; or the Arabs plucking the berries of the coffee tree, a still more beautiful one, with a profusion of white blossoms and an odour like jessamine. For the sugar (instead of a bitterer thought, not so harmonious to our purpose; but not to be forgotten at due times) you may think of Waller's Sacharissa,* so named from the Latin word (Saccharum) a poor compliment to the lady; but the lady shall sweeten the sugar, instead of the sugar doing honour to the lady; and she was a very knowing as well as beautiful woman, and saw farther into love and sweetness than the sophisticate court poet; she would not have him, notwithstanding his sugary verses, but married a higher nature.

She married a sincere, affectionate, and courageous man, Robert Spencer, Earl of Sunderland, who was killed four years afterwards, in a cause for which he thought himself bound to quit the arms of the woman he loved. Her second husband was of the Smythe family. In her old age, meeting Waller at a card table, Lady Sunderland asked him, in good humoured and not ungrateful recollection of his fine verses, when he would write any more such upon her; to which the "polite" poet, either from spite or want of address, had the poverty of spirit to reply, 'Oh madam! when your ladyship is as young again.'"

The sugar-cane is always propagated from cuttings. When sown in the colonies of America, the seeds have never been known to vegetate; and although there must doubtless be some country where the course of nature could be followed in this respect, we are not acquainted with any place in which the cultivators resort to the sowing of seed, in order to the propagation of the plant. The top joints are always taken for planting, because they are less rich in saccharine juice than the lower parts of the cane, while their power of vegetation is equally strong. The cane plant is possessed of the power of tillering, in a manner similar to that shown by wheat, although not to an equal extent. In preparing a field for planting with the cuttings of cane, the ground is marked out in rows three or four feet apart, and in these lines holes are dug from eight to twelve inches deep, and with an interval of two feet between the holes. Where the ground is level, larger spaces are left at certain intervals, for the facility of carting; but there are many situations at the sides of steep hills where no cart can be taken, and in such cases these spaces are not required. The ripe canes are then conveyed to the mill in bundles on the backs of mules, or are passed down to the bottom of the hill through wooden spouts.

The hoeing of a cane field is a most laborious operation when performed, as it must be, under the rays of a tropical sun.

Formerly this task was always effected by hand labour, but of late years, where the nature of the ground will admit of the employment of a plough, that instrument has been substituted, to the mutual advantage of the planter and his labourers. The planting of canes does not require to be renewed annually; in such a case the utmost number of labourers now employed on a sugar plantation would be wholly inadequate to its performance. The most general plan is for a certain portion of the land in cultivation to be planted annually and in succession, the roots and stoles of the canes of the former year being left through the remaining parts of the plantation. From these, fresh canes, which are called rattoons, spring up, and are nearly as large the first year as plant canes. Rattoon canes have a tendency to deteriorate—at least in size—every year they are continued, for which reason the progressive renewal of the plants is adopted. This plan may, however, be continued with very good effect for several years, provided the roots are furnished every year with a liberal supply of manure, that the ground about them is well loosened, and that all weeds are

* Sacharissa was Lady Dorothy Sidney, of the great and truly noble family of the Sidneys.

carefully removed. In this way it is said the same roots have been made to send up canes during twenty years. In some few cases, the planters adopt a different course, and never wholly renew any individual field of canes, but content themselves with supplying new cuttings in such particular spots as from time to time appear to be thin.

The best season for planting is between the months of August and November, the canes being thus less liable to be injured by the heavy rains and high winds with which the West India islands are so frequently visited.

All the precautions, however, which can possibly be taken by the most experienced planter, will not always secure a crop. The sugar-cane is subject to a disease called a blast, for which no remedy has hitherto been found: it consists of millions of little insects, whose proper food is the juice of the cane, in search of which they wound the tender blades, and consequently destroy the vessels. The growth of the plant is thus checked until it withers or dies in proportion to the degree of the ravage.

These insects are not the only enemies which the planters have to contend with. The canes are likewise much damaged by monkies and rats, which however are more easily destroyed. The former come down from their retreats in silent parties, during the night, and having posted sentinels to give the alarm if any thing approaches, they destroy incredible quantities of the cane by their gambols, as well as by their greediness. It is in vain to lay traps for these creatures, however baited, and the only way to protect the plantations is to set a numerous watch, well armed with fowling-pieces, and provided with dogs. The negroes on the different plantations, who think their flesh very good eating, are always ready to perform this part of their service.

In the lowland plantations, the rats also do a vast deal of mischief. They are said to have been introduced from Europe by the shipping, and have since multiplied prodigiously, breeding in the ground under loose stones and bushes. These, also are considered by the field negroes as choice food, and are even said to be sold publicly in the markets of Jamaica.

The canes are cut in the British West India Islands, towards the end of February, or in March and April, as they are then as ripe as the nature of the soil will allow them to be; at this season, the nutritive quality of the sugar at once becomes apparent amongst the working negroes and the different animals employed upon the plantations; such indeed is the pleasure they derive from it, that the time of crop in the sugar islands, is the season of gladness and festivity to man and beast; "so palatable, salutary, and nourishing," says Mr. Edwards, "is the juice of the cane, that every individual of the animal creation derives health and vigour from its use, in a few weeks after the mill is set in action. The labouring horses, oxen and mules, though almost constantly at work during this season, yet, being indulged with plenty of the green tops of this noble vegetable, and some of the scummings from the boiling house, improve more than at any other period of the year."

The canes being gathered, are carried to the mill, where the juice is squeezed out by pressing them between huge iron rollers; it is then boiled with lime water, which makes a thick scum rise to the top; the clear liquor is allowed to run off below, and after repeated boilings, which thicken it very much, it is suffered to crystallize into the appearance of our brown sugar, by standing in a vessel, the bottom of which is pierced with several holes in order that the syrup may drain off; what remains from this process is called molasses, from which rum is obtained by distillation.

To form loaf sugar, which is only the same, cleared of its impurities; the brown sugar is dissolved in water, and being mixed with whites of eggs or bullocks' blood, is again put into the boiler; the liquor thus throws up a thick scum to the surface, and the clear substance, rendered thick by boiling, is poured into moulds of the same shape or a sugar-loaf. An additional process however is required to whiten it; for this effect, the mould is turned point downwards, and its broad end covered with clay, through which water is made to pass; the water slowly trickling through the sugar, unites with and carries off the matter which discolours it, leaving the whole perfectly white.

Sugar candy is made by allowing the liquor, which has been thickened by repeated boiling, to cool slowly. Barley Sugar, is sugar melted by heat, and afterwards cooled in moulds of a spiral form.

Medical Uses.—Dr. A. T. Thomson observes that "raw sugar and molasses are laxative; and refined sugar externally applied is escharotic. All the kinds are extremely nutrient, and more generally used as articles of diet than for medicinal purposes; except it be to cover the taste of nauseous drugs. Sugar, however, is said to be a preventive of worms, and to prove useful in scurvy; but it is hurtful to those of bilious, hypochondriacal, and dyspeptic habits. Milk boiled with fine sugar will keep good for a considerable time."—(*Dispensatory*, 9th edit. p. 638.)

Sugar is used in pharmacy to make syrups, confections, and lozenges. It is remarkable that while the London Pharmacopœia has only thirteen syrups, and those of no great importance, the Parisian Codex contains nearly a hundred, among which are many active remedies.

Tamarindus Indica?

TAMARINDUS INDICA.—THE TAMARIND TREE.

CLASS XVI. MONADELPHIA.————ORDER I. TRIANDRIA.

NATURAL ORDER, LEGUMINOSÆ.—THE PEA TRIBE.

FIG. (*a*) Represents the Pod.

THE Tamarind-tree, the *tetul* of Upper Hindustan, is likewise a native of Egypt and Arabia, as well as of the East Indies. In the West India islands, where it has become naturalized, it is cultivated for the sake both of its shade and its acid, cooling, highly grateful fruit; the pulp of which, mixed and boiled with sugar, forms an important article of commerce. It is very abundant in Jamaica, growing to a vast bulk, and thrives well in the Savannahs, but most luxuriantly in a deep rich brick mould. There is perhaps only one known species, the subject of the present article; but the West Indian Tamarind, believed to be only a variety of the East Indian one, differs so much in the form of its fruit, and the number of its seeds, that by some authors it is considered as specifically distinct.

The stem is lofty, and of considerable thickness, terminated by spreading branches, bearing tufts of alternate, abruptly-pinnate, smooth, bright green leaves, each composed of many pairs of elliptic-oblong, sessile, entire leaflets, about half an inch in length, and one sixth of an inch broad, rather glaucous beneath. It is observed, that these leaflets close at the approach of evening: or in cold moist weather, like those of the sensitive plant. The flowers are in simple clusters, terminating the short lateral branches: the calyx is inferior, of one leaf, divided into four deep, ovate, acute, deciduous, straw-coloured segments; the petals three, yellowish, beautifully variegated, with red veins; ovate, acute, concave, wavy, reflexed, the length of the calyx, and inserted into the tube. The filaments are also three, awl-shaped, purplish, as long as the corolla, connected at the base, curved upwards, inserted into the mouth of the calyx, in the vacancy opposite to the uppermost petal, and bearing large, ovate, incumbent anthers. Besides these, there are six or seven rudiments of stamens, five or more of them setaceous threads, destitute of anthers. The germen is oblong, compressed, incurved, furnished with an awl-shaped style, rather longer than the stamens, and an obtuse stigma. The pods are oblong, compressed, with a joint, 1-celled, and of a dull brown colour when ripe. Those from the West Indies, from two to five inches long, with two, three, or four seeds; but those from the East Indies are almost twice as long, and contain eight or ten and even twelve seeds. The seeds in both are roundish, somewhat angular, flattened, hard, polished, with a central circumscribed disc at each side, and lodged in a quantity of soft pulp.

This tree, which is common in almost every part of Hindustan, as well as in the West Indies, grows most luxuriantly in all the eastern islands. The soil of Java is said to bring the fruit to very high perfection; but the Tamarinds from the depending island of Madura are reputed to be the best; they are of a dark colour, with a large proportion of pulp to the seeds. The natives of India consider it to be dangerous to sleep under the Tamarind-tree, especially during the night; "and grass," says Dr. Ainslie, "or herbs of any kind, are seldom seen growing in such situations, and never with luxuriance;" which facts have been lately confirmed to us by a gentleman, who spent many years in India.

Long tells us in his valuable history of Jamaica, that "the fruit or pods are gathered in June, July, and August, according to their maturity. The pods must be fully ripe, which is known by their fragility, or easily breaking on a small pressure between the finger and thumb. The fruit taken out of the pod, and cleared from fragments of shells, is placed in casks, in layers, and the boiling syrup from the *tache* or first copper in the boiling house is poured in, just before it begins to granulate, till the cask is filled; the syrup prevades every part quite to the bottom, and when cool, the cask is headed for sale. The more elegant method is with sugar well clarified with eggs, till a clear transparent syrup is formed, which gives to the fruit a much pleasanter flavour." The East Indian tamarind differs from that of the West Indies, not only in the structure of the fruit, but in the relative sweetness; for the East Indian tamarinds are preserved without sugar, and exported to Europe in this form. Mr. Crawford says, that those exported from one part of the Archipelago to another, are merely dried in the sun, but those sent to Europe are cured with salt.

Qualities and Chemical Properties.—The pulp of the tamarind, which is inodorous, is brought to us chiefly from the West Indies, for medicinal purposes, mixed with the seeds, and small fibres, over which, as already stated, boiling syrup is poured. It possesses an agreeable, sweetish, acidulated taste, and is considered as no little luxury by persons in hot climates; and we are told that travellers passing through the deserts of Arabia generally take care to supply themselves with it at Cairo. By treating this pulp first with cold water, and afterwards with hot, Vauquelin separated the following substances:

Supertartate of potass	300
Gum	432
Sugar	1152
Jelly	576
Citric acid	864
Tartaric acid	144
Malic acid	40
Feculent matter	2880
Water	3364
	9752

Ann. de Chim. lxxiv. 303.

According to Ratier, a spurious article is frequently sold for the true tamarind.[a]

It was very early introduced into this country; for Gerarde makes mention of it as growing here. It does not often flower in England, though it has done so in the Royal Gardens at Kew. It is, however, a common ornament of our hot-houses. Niebuhr says, "the tamarind is equally useful and agreeable. It has a pulp of a vinous taste, of which a wholesome refreshing liquor is prepared; its shade shelters houses from the torrid heat of the sun; and its fine figure greatly adorns the scenery of the country." Its refreshing properties have given it a place in our poetry:—

"The damsel from the tamarind tree
Had pluck'd its acid fruit,
And steep'd it in water long;
And whoso drank of the cooling draught,
He would not wish for wine."

Mandelso, an old traveller, says, that as soon as the sun is set the leaves of the tamarind close up the fruit to preserve it from the dew, and open as soon as that luminary appears again:—

"'Tis the cool evening hour:
The tamarind from the dew
Sheaths its young fruit, yet green."

About forty tons of tamarinds are annually imported into Great Britain.

Medical Properties and Uses.—This fruit is cooling and laxative: but while it gratefully allays the thirst of ardent fever, it must be taken in large quantities to insure the latter effect, and is then apt to produce flatulence. It is generally added to cathartics that are given in infusion, with a view to promote their activity, or to cover their taste, and is a useful application to sore throats. The natives of India prepare a kind of sherbet from it; and the Vytians, like us, use it in their laxative electuaries. A decoction of the acid leaves of the tree they often employ externally, in cases requiring repellent fomentations, and in their collyria; and, internally, they are supposed by the Tamool doctors to be useful in jaundice. The stones of the tamarind, which to the taste are very astringent, are prescribed by the Vytians in dysenteric complaints, and for menorrhagia; and in times of scarcity, after being divested of the skin which covers them, by the processes of soaking and roasting, they are boiled, or fried, and resembling in taste a field-bean, are eaten by the poor of India. A decoction of the leaves is used in the West Indies to destroy worms in children.

Off. Prep.—Confectio Cassiæ.
Confectio Sennæ *Lond.*
Infusum Sennæ comp. *E.*
Inf. Sennæ cum Tamarindis. *D.*

[a] Il est rare aujourd'hui de trouver dans le commerce du véritable tamarin; on le falsifie avec la pulpe de pruneaux et l'acide tartrique: cette fraude est très-difficile à reconnaître.—*Pharm. Française*, p. 138.

Thea.

THEA.—THE TEA PLANT.

Class XIII. POLYANDRIA.——Order III. TRIGYNIA.

Natural Order, TERNSTRŒMIACEÆ.——THE CAMELLIÆ TRIBE.

Fig. (*a*) Represents the back of a flower. (*b*) A seed-vessel containing seeds.
(*c*) The seed which yields an oil, which in some parts is used as sauce to food.

Thea (altered from Tcha the Chinese name for Tea.) All the different kinds of teas brought to this country from China are the produce of Thea Viridis, and the whole differences depend upon soil and climate, and the different ages and periods at which the leaves are gathered, and different modes of drying. Dr. Lettsom observes, that a green tea planted in the Bohea tea country will produce Bohea Tea, and on the contrary that a plant brought from the Bohea tea country, planted in the green tea country will produce green tea. The plant loves to grow in valleys, at the foot of mountains, and upon the banks of rivers, where it enjoys a southern exposure to the sun, though it endures considerable variations of heat and cold, as it flourishes in the northern clime of Pekin, as well as about Canton, and it is observed, that the degree of cold is as severe in winter as some of the southern parts of Europe. However, the best tea grows in a mild temperate climate, the country about Nankin producing better tea than either Pekin or Canton. In Japan the tea is planted round the borders of fields without regard to soil or situation, but as the Chinese export great quantities, they plant whole fields with it. The plants are raised from seeds sown where they are to remain. Three or more are dropped into a hole four or five inches deep; these come up without any further trouble, and require little culture, except that of removing weeds. The leaves are not collected from the cultivated plants until they are three years old, and after growing nine or ten years they are cut down, in order that the young shoots that will then rise, may afford a greater supply of leaves. The best time to gather the leaves is while they are small, young, and juicy. The first gathering of tea-leaves, according to Kampfer, commences about the latter end of February, when the leaves are young, and unexpanded. The second collection is made about the beginning of April, and the third in June. The first collection, which only consists of fine tender leaves, is most esteemed, and is called Imperial Tea. The second is called Tootsjaa, or Chinese Tea, because it is infused and drunk after the Chinese manner. The last, which is the coarsest and cheapest, is drunk by the lower class of people.

Besides the three kinds of tea here noticed, it may be observed, that by sorting these, the varietie of tea become still further multiplied. The tea trees that yield often the finest leaves grow on the steep declivities of hills, where it is dangerous, and in some cases impracticable to collect them. The Chinese are said to vanquish this difficulty by a singular contrivance. The large monkies which inhabit these cliffs are irritated, and in revenge they break off the branches and throw them down, so that the leaves are thus obtained. The leaves should be dried as soon as possible after they are gathered. The building, or drying-houses, contain from five to ten, or twenty small furnaces, about three feet high, each having at the top a large flat iron pan. There is also a long low table, covered with mats, on which the leaves are laid and rolled by workmen, who sit round it; the iron pan being heated to a certain degree, a few pounds of fresh gathered leaves are put upon it; the fresh and juicy leaves crack when they touch the pan, and it is the business of the operator to shift them as quick as possible with his bare hands, till they become too hot to be easily endured. At this instant the leaves are taken off with a kind of shovel, like a fan, and thrown on the mats before the rollers, who, taking small quantities at a time, roll them in the palms of their hands in one direction, while others are fanning them that they may cool the more speedily, and retain their curl the longer. This process is repeated two or three times, or oftener, before the tea is put into the stores, in order that all the moisture of the leaves may be thoroughly dissipated, and their curl more completely preserved. On every repetition the pan is less heated, and the operation performed more slowly and cautiously. The tea is then separated into the different kinds, and deposited in the store for domestic use or exportation. The country people cure their tea leaves in earthen kettles, which answer every necessary purpose at less trouble and expense than the process described above, and they are thus enabled to sell it cheaper. After the tea has been kept for some months, it is taken out of the vessels in which it was stored, and dried again over a very gentle fire, that it may be deprived of any humidity which remained, or it might have since contracted. That which is brought down to Canton undergoes a second roasting, winnowing, packing, &c. from whence it is sent to Europe.

The Chinese know nothing of Imperial Tea, Flower of Tea, and many other names which in Europe serve to distinguish the goodness and the price of tea, but besides the common tea they distinguish two

other kinds, viz. the Voui and Soumlo, which are reserved for people of the first quality, and for those who are sick.

We have two principal kinds of tea in Europe, viz. green tea, which is the common tea of the Chinese; (T. le Compte calls it Bing tea, and says it is gathered in April;) Bohea tea, which is the Voui or Vou-tche of the Chinese, and which M. le Compte makes to differ from the green tea only by its being gathered a month before it, viz. in March, while in the bud. Others take it for the tea of some particular provinces, the soil being found to make as much alteration in the properties of tea as the time of gathering. As to the differences of flavour and colour peculiar to these two kinds, Dr. Lettsom thinks that there is reason to suspect that they are produced by art. As to the opinion that green tea owes its verdure to an inflorescence acquired from the plates of copper on which it is supposed to be curled or dried, there is no foundation for the suspicion, as the infusions undergo no change on the addition of volatile alkali, which would detect the minutest portion of copper by turning the liquors blue. On the whole, Dr. Lettsom thinks it not improbable that some green dye, prepared from vegetable substances, is employed in the colouring of the leaves of the green teas. And Newman suspects that the brown colour and flavour of the Bohea teas are introduced by art. Both convey their own particular colour to water, but to rectified spirits they both impart a fine deep green.

The process of gathering the tea is one of great nicety and importance. Each leaf is plucked separately from the stalk; the hands of the gatherer are kept clean, and in collecting some of the fine sorts, he hardly ventures to breathe on the plant. At a place called Udsi, in the Island of Japan, is a mountain, the climate of which is supposed to be particularly congenial to the growth of tea, and the whole crop which grows upon it is reserved for the sole use and disposal of the Emperor. A wide and deep ditch round the base of the mountain, prevents all access, except to the appointed guardian of its treasures. The shrubs are carefully cleansed of dust, and protected from any inclemency of the weather. The labourers who collect the leaves, are obliged, for some weeks previous, to abstain from all gross food, less their breath or perspiration might injure the flavour; they wear fine gloves while at work, and during that period bathe two or three times a day.

Owing to the minute division of land in China, there can be few, if any large tea-growers; the plantations are small, and the business of them carried on by the owner and his own family, who carry the produce of each picking immediately to market, where it is disposed of to a class of persons whose business it is to collect and dry the leaves, ready for the Canton tea-merchants. *Don's General System of Gardening.*

The activity of tea chiefly resides in the fragrant and volatile parts, which stands charged as the cause of those nervous affections that are said to be produced or aggravated by the use of the infusion.

From Dr. Smith's experiments it appears, that green tea has the effect of destroying the sensibility of the nerves and the irritability of the muscles; and from the experiments of Dr. Lettsom it appears, that green tea gives out on distillation an odorous water, which is powerfully narcotic, but in a more recent state, as in China, it is still more powerfully narcotic, therefore the Chinese never use it until it is one year old or more, till its volatile parts are still further dissipated. It would therefore appear, that what are considered the finer teas, contain more of this narcotic principle, than what are considered the coarser kinds, especially the green teas, as the more odorous teas in this country often show their sedative powers, in weakening the nerves of the stomach, and the whole system. Its effects, however, seem to be be very different in different persons, hence the contradictory accounts that are reported of these effects. The substitutes for tea used by the Chinese may be mentioned. A species of moss common to the mountains or shantung, an infusion of ferns of different sorts, and Dr. Abel thinks that the leaves of the common Camellia and oil Camellia may be added, and Kampfer asserts that in Japan, a species of Camellia, as well as Olea fragrans is used to give tea a high flavour. By far the strongest tea Dr. Abel tasted in China was that called Yutien, used only on occasions of ceremony. It scarcely coloured the water, and on examination, was found to consist of buds and half expanded leaves.

Savory speaks of a sort of red tea, or Tartar tea, called Honan-tcha, which tinges the water of a pale red; it is said to be extremely digestive: by means of it the Tartars are said to be able to feed on raw flesh; the drink tea is made in China and the greatest part of the East, in the same manner as in Europe.

The Chinese are always taking tea, especially at meals, sometimes three, six, or ten times a day; it is the chief treat with which they regale their friends.

With regard to the commercial history of tea, it was first introduced into Europe by the Dutch East India Company, very early in the 17th century, and a quantity of it was brought over from Holland by Lords Arlington and Ossory, about the year 1666, at which time it was sold for 60s. a pound. But it appears, even before this time, drinking of tea even in public coffee houses in this country was not uncommon, for in 1660 a duty of 8d per gallon was laid on the liquor made and sold in all coffee-houses. As tea has always held so principal a place in our intercourse with China, it requires some particular consideration as an article of commerce. We have seen before, that the fineness and clearness of tea are determined by the tenderness and

smallness of the leaf when picked. The various descriptions of the black diminish in quality and value as they are gathered later in the season, until they reach the lowest kind, called by us Bohea, and by the Chinese (Ta-cha) "large tea," on account of the maturity and size of the leaves. The early leaf buds in spring, being covered with a white silky down, are gathered to make Pekoe, which is a corruption of the Canton name Pa-ko, "white down." A few days' longer growth produce what is here styled "black-leaved pekoe." The more fleshy and matured leaves constitute Souchong; as they grow larger and coarser they form Congou; and the last and latest picking is Bohea. The tea farmers who are small proprietors or cultivators, give the tea a rough preparation, and then take it to the contractors, whose business it is to adapt its further preparation to the existing nature of the demand.

VARIOUS WAYS OF MAKING TEA.—"The Japanese reduce their tea to a fine powder by pounding it; they put certain portions of this into a tea cup, pour boiling water upon it, and stir it up, and drink it as soon as it is cool enough." Dubuisson's manner of making tea: "Put the tea into a kettle with cold water,—cover it close, set it on the fire, and make it all but boil, when you see a sort of white scum on the surface, take it from the fire, when the leaves sink it is ready."—"The night before you wish to have tea ready for drinking, pour on it as much cold water as you wish to make tea—next morning pour off the clear liquor, and when you wish to drink it, make it warm."

The above are from "L'Art de Limonadier," de Dubuisson, Paris. A great saving may be made by making a tincture of tea, thus, pour boiling water upon it, and let it stand twenty minutes, putting into each cup no more than is necessary to fill it about one third full,—fill each cup up with hot water from the urn, thus the tea will be always hot and equally strong to the end,—and one tea spoonful will be found enough for three cups for each person; according to the present mode of making it, three times the quantity is often used."—*See Trusler's Way to be Rich and Respectable.*

The use of Tea as a beverage in China is of antiquity beyond record, and is as universal as it is ancient; from the Emperor to the lowest peasant or labourer, all alike drink tea, varying only in quality. That consumed by the common people must, however, be not only of an inferior class, but very weak; as the native attendants on Lord Macartney's embassy were continually begging the refuse leaves, which had been already used by the English, because, after pouring fresh water over them, they obtained a better beverage than what they had usually an opportunity of enjoying. On the other hand, some tea presented by the Emperor Kien Long to Lord Macartney, was found to want somewhat of the astringency which the British tea drinker is accustomed to look for and value in the infusion.

Mr. Ellis, in an account of one of Lord Amherst's visits of ceremony to Twang, a mandarin of high rank, says, "The tea served round was that used only on occasions of ceremony, called yu-tien: it was a small leaf highly-flavoured green tea. In Lord Amherst's and Kwang's cups there was a thin perforated silver plate, to keep the leaves down, and let the infusion pass through. The cups used by the mandarins of rank, in form resemble coffee-cups, and are placed in a wooden or metal saucer, shaped like the Chinese boats."

From Mr. Ellis's Journal, we transcribe the following passage, descriptive of a plantation, "Our walk led us through a valley, where we saw, for the first time, the tea plant. It is a beautiful shrub, resembling a myrtle, with a white flower extremely fragrant. The plantations were not of any extent, and were either surrounded by small fields of other cultivation, or placed in detached spots; we also saw the ginger in small patches covered with a frame-work to protect it from the birds."

It is hardly credible that on the first introduction of the Chinese leaf, which now affords our daily refreshment, or the American leaf, whose sedative fumes made it so long a universal favourite, or the Arabian berry, whose aroma exhilarates its European votaries, that the use of these harmless novelties should have spread consternation among the nations of Europe, and have been anathematised by the terrors and fictions of some of the learned. Yet this seems to have happened. Patin, who wrote so furiously against the introduction of antimony, spread the same alarm at the use of tea, which he calls "l'impertinente nouveauté du siécle." In Germany, Hahnemann considered tea-dealers as immoral members of society, lying in wait for men's purses and lives; and Dr. Duncan, in his treatise on hot liquors, suspected that the virtues attributed to tea were merely to encourage the importation.

Many virulent pamphlets were published against the use of this shrub, from various motives. In 1670, a Dutch writer says, it was ridiculed in Holland, under the name of hay-water. The progress of this famous plant, says an ingenious writer, has been something like the progress of truth, suspected at first, though very palatable to those who had courage to taste it, resisted as it encroached, abused as its popularity seemed to spead, and establishing its triumph at last, in cheering the whole land from the palace to the cottage, only by the slow and resistless efforts of time and its own virtues.

Mr. Hanway enumerates "the mischiefs of tea", and seems willing to charge upon it every mischief that he can find. He begins, however, by questioning the virtues ascribed to it, and denies that the crews of the Chinese ships are preserved in their voyage homewards from the scurvy by tea. About this report I have

made some inquiry, and though I cannot find that these crews are wholly exempt from scorbutic maladies, they seem to suffer them less than other mariners in any course of equal length. This I ascribe to the tea, not as possessing any medicinal qualities, but as tempting them to drink more water, to dilute their salt food more copiously, and perhaps to forbear punch or other strong liquors. He then proceeds in the pathetic strain, to tell the ladies how, by drinking tea, they injure their health, and, what is yet more dear, their beauty.

'To what can we ascribe the numerous complaints which prevail; how many sweet creatures of your sex languish with a weak digestion, low spirits, lassitudes, melancholy, and twenty disorders which in spite of the faculty, have yet no names, except the general one of nervous complaints; let them change their diet, and among other articles leave off drinking tea, it is more than probable the greatest part of them will be restored to health. Hot water is also very hurtful to the teeth. The Chinese do not drink their tea so hot as we do, and yet they have bad teeth. This cannot be ascribed entirely to sugar, for they use very little, but we all know that hot or cold things which pain the teeth, destroy them also. If we drank less tea, and used gentle acids for the gums and teeth, particularly sour oranges, though we had a less number of French dentists, I fancy this essential part of beauty would be much better preserved.

The Women in the United Provinces who sip tea from morning till night, are also as remarkable for bad teeth. They also look pallid, and many are troubled with certain disorders arising from a relaxed habit. The Portuguese ladies on the other hand, entertain with sweet-meats, and yet they have very good teeth. But their food in general is more of a farinaceous and vegetable kind than ours. They also drink cold water instead of sipping hot, and never taste fermented liquors; for these reasons the use of sugar does not seem to be at all pernicious to them.

Men seem to have lost their stature and comeliness, and women their beauty. I am not young, but methinks there is not so much beauty in this land as there was. Your very chamber-maids have lost their bloom, I suppose by sipping tea.' To raise the fright still higher, he quotes an account of a pig's tail scalded with tea, on which however he does not much insist.

Of these dreadful effects, some are perhaps imaginary, and some may have another cause. That there is less beauty in the present race of females, than in those who entered the world with us, all of us are inclined to think on whom beauty has ceased to smile, but our fathers and grandfathers made the same complaint before us, and our posterity will still find beauties irresistibly powerful." *Dr. Johnson.*

Now, then, let us take the bare cost of the use of tea. I suppose a pound of tea to last twenty days; which is not nearly half an ounce every morning and evening. I allow for each mess half a pint of milk—and I allow three pounds of the red dirty sugar to each pound of tea. The account of expenditure would then stand very high, but to these must be added the amount of tea tackle, one set of which, will, upon an average be demolished every year. To these outgoings must be added the cost of beer at the public-house; for some the man will have after all, and the woman too, unless they be upon the point of actual starvation.—Two pots a week is as little as will serve in this way; and here is a dead loss of ninepence a week, seeing that two pots of beer, full as strong, and a great deal better, can be brewed at home for threepence. The account of the year's tea drinking will, then, stand thus:—

	£	s.	d.
18 lbs. of Tea	4	10	0
54 lbs. of Sugar	1	11	6
365 pints of Milk	1	10	0
Tea Tackle	0	5	0
200 Fires	0	16	8
30 Days' Work	0	15	0
Loss by going to the Public-house.	1	19	0
	£11	7	2

I have here estimated every thing at its very lowest. The entertainment which I have here provided is as poor, as mean, as miserable, as any thing short of starvation can set forth; and yet the wretched thing amounts to a good third part of a good and able labourer's wages."—*Cobbett's Cottage Economy.*

In no instance has a greater revolution taken place in the habits of a people, than in that which tea has effected within the last hundred years among the English. It was known, about the middle of the seventeenth century, rather as a curiosity than an article of use, as appears from an entry in Pepys's Gossiping Diary, dated 1661, in which the writer says, that he "sent for a cup of tea, a Chinese drink, of which he had never drank before." About the beginning of the last century it came more into use, and the following statement exhibits the surprising strides which it has from time to time made, in the space of just one hundred years, towards its present consumption:—

1734	632,374 lbs.	1785	10,856,578 lbs.
1746	2,358,589	1800	20,358,702
1758	4,205,394	1833	31,829,619
1768	5,892,074		

In 1806, the Excise Duty was raised to ninety per cent.—1819, to nearly one hundred per cent. on the sale price of all teas—a tax which must have had a powerful effect in checking the growth of consumption. In spite, however, of this, it is well known that the importations into this country have exceeded the aggregate consumption of the whole western world besides. By a letter written from Siberia to Canton, in 1819, it appears that the quantity annually carried to Russia amounted to 66,000 chests, containing about 5,000,000 lbs., and no material increase has since taken place.

Next to the British trade, the most considerable in tonnage and value at Canton, has been that of the United States; subject, however, to fluctations from which our own has been free. The remission of the tea duties, gave it, in 1833, a sudden stimulus, and the exports and imports at Canton, on the part of the Americans, each of them exceeded eight millions of dollars on board of nearly fifty small vessels. In consequence, however, of the losses sustained upon the teas, the American tonnage in the following year, 1834, was greatly reduced, nor was it expected very soon to reach its previous amount. The annual consumption of teas, in the United States, has been commonly estimated at about 8,000,000 lbs. Until the year 1824, our North American colonists, in Canada and Nova Scotia, were chiefly supplied with teas smuggled across the lakes from the Northern States of the Union; but in that year, the East India Company began to send an annual provision of about three ship loads of cheap teas to Quebec and Halifax, which had the effect of altogether stopping the American supply

A difference once arose between the Court of Directors of the East India Company, and the principal tea-dealers of London and Edinburgh on the subject of what is termed "lot money." This charge, as is stated in the petition, addressed in October, 1828, to the directors by the principal tea dealers, requesting that it might be discontinued, was originally a perquisite granted to one of the Company's servants, and which, though unsupported by any claim of right, or of advantage to the trade, the Company have now appropriated to themselves. Their refusal to cancel this charge, which the Court intimated by letter to the memorialists excited the strongest dissatisfaction among them. The lot money was, in the infancy of the Company, given to one of the servants of the concern, but the company finding that it was extremely productive, took it to themselves, and although not warehousemen laid on charges which were found to be oppressive and insupportable. The servant alluded to, lost this valuable perquisite in rather an odd way. He was so struck with the liberality of the Directors, in throwing him an addition to his salary, that he determined to invite them to dinner at his house at Blackheath. The entertainment which his gratitude dictated was such, as even the directors themselves were unaccustomed to; there was not a delicacy of the season that was not on the hospitable board. The directors were all astonished, and after congratulating each other on the magnificent treat, they returned home silent, but in deep thought. Next morning an enquiry was instituted into the amount of the salary and fees of their generous entertainer, and the "Lot money" was immediately struck off from his office, and adopted into the general concern. They, however, had so lively a feeling of the warmth with which he gave them a taste of his gratitude, that they increased his salary, we are told, about £1500 or £2000 a year.

It is a question of some importance, how far a sudden increase in the demand for tea at Canton is calculated to injure its average quality. The essential services derived by the East India Company from their experienced inspectors, who from long practice, acquired that readiness in discriminating the slightest shades of quality, which nothing but practice can confer, have demonstrated the expediency of such professional persons being still employed under the free-trade system, by all those, at least, who are not rash enough to trust to themselves or to the Chinese. One of the inspectors, Mr. Reeves, junior, informed the writer of this at the close of 1833, that he had detected many attempts to pass off spurious or adulterated teas among the black kinds. The greater portion, indeed, of a particular description of tea, distinguished by the term *Ankoi* was mixed with spurious leaves. These were of various kinds, but appeared generally to be largish leaves cut up, though it was found impossible to ascertain the trees or shrubs to which they belonged. The two most prevalent were a thick, soft, dark green leaf, very smooth, and a palish hairy leaf, with the veins strongly marked. The former is not detected easily, and only by inspecting the leaves after infusion, as it imparts no bad smell to the tea, and is hardly perceptible even to the taste; the latter is readily discovered by its giving to the tea a "faint and odd" smell, as well as taste.

But this was nothing in comparison with the effrontery which the Chinese displayed in carrying on an extensive manufactory of *green* teas from *damaged black leaves*, at a village or suburb called Honan, exactly opposite to the European factories, but divided from them by the river. The remission of the tea duties in the United States occasioned, in the years 1832 and 1833, a demand for green teas at Canton which could

not be supplied by arrivals from the provinces. The Americans, however, were obliged to sail with cargoes of green tea within the favourable season; they were determined to have these teas, and the Chinese were determined they should be supplied. Certain rumours being afloat concerning the manufacture of green tea from old black leaves, the writer of this became curious to ascertain the truth, and with some difficulty persuaded a Hong merchant to conduct him, accompanied by one of the inspectors, to the place where the operation was carried on. Upon reaching the opposite side of the river, and entering one of these laboratories of factitious hyson, the party were witnesses to a strange scene.

In the first place, large quantities of black tea, which had been damaged in consequence of the floods of the previous autumn, were drying in baskets with sieve bottoms, placed over pans of charcoal. The dried leaves were then transferred in portions of a few pounds each to a great number of cast iron pans, imbedded in chunam or mortar, over furnaces. At each pan stood a workman stirring the tea rapidly round with his hand, having previously added a small quantity of *turmeric* in powder, which of course gave the leaves a yellowish or orange tinge; but they were still to be made green. For this purpose some lumps of a fine blue were produced, together with a white substance in powder, which from the names given to them by the workmen, as well as their appearance, were known at once to be *prussian blue* and *gypsum*.[a] These were triturated finely together with a small pestle, in such portions as reduced the dark colour of the blue to a light shade; and a quantity equal to a small tea-spoonful of the powder being added to the yellowish leaves, these were stirred as before over the fire, until the tea had taken the fine bloom colour of hyson, with very much the *same scent*. To prevent all possibility of error regarding the substances employed, samples of them, together with specimens of the leaves in each stage of the process, were carried away from the place.

The tea was then handed in small quantities, on broad shallow baskets, to a number of women and children, who carefully picked out the stalks, and coarse or uncurled leaves; and, when this had been done, it was passed in succession through sieves of different degrees of fineness. The first sifting produces what was sold as hyson-skin, and the last bore the name of young hyson. As the party did not see the intermediate step between the picking and sifting, there is reason to believe that the size of the leaves was first reduced by chopping or cutting with shears. If the tea had not highly deleterious qualities, it can only be in consequence of the colouring matter existing in a small proportion to the leaf;[b] and the Chinese seemed quite conscious of the real character of the occupation in which they were engaged, for, on attempting to enter several other places where the same process was going on, the doors were speedily closed upon the party. Indeed, had it not been for the influence of the Hongist who conducted them, there would have been little chance of their seeing as much as they did. *Library of Entertaining Knowledge: The Chinese.*

In 1834, it was discovered that the real tea plant was indigenous to the Company's territories in Upper Assam, bordering on the Chinese province of Yun-nan: and there now appears to be every reason for feeling certain that it may be cultivated, under proper management, with complete success for commercial purposes as well as for local consumption. In our works of more than a century back, as in the Spectator, Pope's poems, &c. we may always find the term Bohea applied to the best tea.

"Where none learn ombre, none e'er taste Bohea."

Now stir the fire, and close the shutters fast,
Let fall the curtains, wheel the sofa round,
And, while the bubbling and loud hissing urn
Throws up a steamy column, and the cups,
That cheer, but not inebriate, wait on each,
So let us welcome peaceful evening in.

Cowper.

[a] Prussiate of iron and sulphate of lime.

[b] The turmeric and gypsum are perfectly innocuous; but the prussian blue is a poison.

Datura Stramonium.

DATURA STRAMONIUM.—OFFICINAL THORN-APPLE.

Class V. PENTANDRIA.—Order I. MONOGYNIA.

Natural Order, SOLANEÆ.—THE NIGHT-SHADE TRIBE.

This is an annual plant originally imported from America, where it is known under the name of *Apple of Peru, Devil's Apple,* and *Jamestown weed;* but was first cultivated in this country from seeds that were brought from Constantinople by Lord Edward Zouch, about the year 1597, and by the old writers of that period it is called the "Thorny Apple of Peru." A variety is also native to America, which is generally a larger plant, bearing purple flowers, striped with deep purple inside, and having a reddish stem, minutely dotted with green. It is supposed to be the D. *tatula* of Linnæus, which possesses the same sensible and medicinal properties as the plant under consideration. The common Thorn-apple is an annual plant, frequently observed naturalized on dunghills, in waste places, and near gardens, in the south of England, particularly in the environs of London, whence it has been admitted into our Flora, by Sir J. E. Smith, and figured in "English Botany," t. 1288.

The thorn-apple rises from a white, branched, woody, and fibrous root, to the height of about two feet. The stem is herbaceous, erect, round, smooth, of a yellowish green colour, undivided below, dichotomous above, and clothed with leaves, springing from the divisions of the stem and branches; which are of a dark green colour on the upper surface, and paler beneath; ovate, pointed, smooth, alternate, sinuated, and toothed, on long cylindrical footstalks. The flowers are large, erect, of a snow-white colour, and proceed singly, on short footstalks from the axillæ of the stem and branches. The calyx is monosepalous, oblong, tubular, and five-toothed: the corolla is funnel-shaped, with the tube cylindrical, longer than the calyx; the limb, spreading, five-angled, acuminate, with five teeth. The filaments are five, awl-shaped, and support oblong flat heart-shaped anthers. The style is erect, filiform, the length of the stamens, with an obtuse bi-lobed stigma. Germen ovate. The fruit is a roundish, ovate capsule, beset with sharp awl-shaped spines, two-celled at the top, four-celled at the bottom, as two of the valves do not extend all through the capsule; four valved, and seated on the base of the calyx. The seeds are numerous, and kidney-shaped.

The generic name Datura is derived by Forskal, from the Arabic appellation Tâtorah. The specific name, stramonium, is supposed to be a corruption of στρυχνομανικον, in reference to its effects in causing madness.

Qualities.—Every part of Stramonium when recent, has a strong, heavy, disagreeable odour: in America said to be sometimes so powerful, that intermittent fever has been ascribed to it, which Beck remarks, "is evidently laying too much stress on the plant; but its effluvia are certainly noxious." It possesses a bitter taste, and imparts to the saliva a green tinge, when chewed. Cows, horses, sheep, and goats refuse this plant.

Chemical Properties.—The virtues of Stramonium, which appear to be extractive, are imparted to water and alcohol; but most readily to the former. This extractive principle is copiously precipitated from the infusion, by muriate of tin. With *sulphate of iron* it gives a deep green, and sometimes an olive colour; and with *gelatin* undergoes no change. The watery infusion is transparent, with a very pale yellow hue, which is dissipated by acids, but very much deepened by the alkalies. According to Wedenberg, (Dissertatio Medica de Stramonii usu,) it contains gum or mucus, resin and a volatile principle, which Dr. A. Todd Thomson pronounces to be carbonate of ammonia. Dr. S. Cooper, of America, by evaporating infusion of Stramonium, observed a large number of minute crystals, resembling particles of nitre; and Professor Bigelow, thinking that they might be analogous to the crystals obtained by Derosne from opium, instituted a series of experiments to ascertain the fact, but was unsuccessful. Brandes has succeeded in extracting from the seeds of Stramonium, an alkaline principle similar to Atropine in its relations, to which he has given the name *Daturine.* It contains the whole of the poisonous matter of Stramonium, and its vapour is likewise exceedingly prejudicial.

Poisonous Effects.—Stramonium, when administered in too large doses, produces intoxication, nausea, delirium, loss of sense, drowsiness, a sort of madness and fury: loss of memory, sometimes permanent; convulsions, sense of suffocation, paralysis of the limbs, cold sweats, excessive thirst, dilatation of the pupil, tremblings, and death.

The Royal Society gravely inquired of Sir Philberto Vernatti, "Whether the Indians can so prepare the stupifying herb Datura, that they make it lie several days, months, or years, according as they will have it, in a man's body; and at the end kill him without missing half an hour's time?"

In Beverly's History of Virginia, p. 121, we find the following curious passage:—"The Jamestown weed, which resembles the thorny apples of Peru, (and I take it to be the plant so called,) is supposed to be one of the greatest coolers in the world. This being an early plant, was gathered very young for a boiled salad, by some of the soldiers sent thither to quell the rebellion of Bacon; and some of them ate plentifully of it: the effect of which was a very pleasant comedy, for they turned natural fools upon it for several days. One would blow up a feather in the air, another would dart straws at it with much fury;

another was sitting up in a corner like a monkey, grinning and making mows at them; a fourth would fondly kiss and paw his companions, and sneer in their faces with a countenance more antic than any in a Dutch droll. In this frantic condition they were confined, lest, in their folly, they should destroy themselves. A thousand simple tricks they played, and after eleven days returned to themselves again, not remembering anything that had passed."

Dr. Rush saw a child between three and four years old, who had swallowed some of the seeds. A violent fever, delirium, tremors in the limbs, and a general eruption on the skin were present, accompanied with considerable swelling, itching and inflammation. Repeated emetics and purgatives alleviated the disease and brought away some of the seeds. Dilatation of the pupils still remained, but was obviated by a continuance of the previous remedies, and she recovered.

In the transactions of the College of Physicians of Philadelphia, Dr. Bartram relates, that he was called to a child suddenly seized with idiotcy without fever. The pulse was natural, tongue clean, and no internal function disturbed, excepting that of the brain. The child appeared very happy; talking, laughing, and in constant motion, yet so weak it could not stand or walk, without tottering. He exhibited an emetic, and the seeds of the *thorn-apple* were rejected, afer which the child recovered.

Morbid Appearances.—The stomachs of animals poisoned with the watery extract of Stramonium, were found by Orfila, inflamed: and blood was extravasated between the mucous coat, and the one subjacent to it. The lungs were of a deep red, and distended with black and fluid blood. Haller opened a woman who was poisoned by Stramonium: the cortical part of the brain was full of blood, and there were some coagula in the cavities of the cranium.

Medical Properties and Uses.—Stramonium, like Belladonna, is so powerful in its effects, that it is not very generally employed in this country; and like many other valuable agents, its real utility is depreciated, through the hyperbolical and laudatory strains that have been lavished on it by its ardent admirers. Baron Störck was the first to recommend it in mania and epilepsy; and like other medicines of the narcotic tribe, it has been found to succeed in some instances, and to fail in many others. Dr. Davy, however, has found it useful in the former, by its allaying irritation, and procuring quiet sleep. And Bergius remarks, "Sæpius ipse," (that is, Wedenberg,) "vidit maniacos in integrum restitutos absque relapsu, ex propinato Extracto Daturæ, per tempus quoddam continuato. Delirium post puerperium sæpe curavi cum Datura, ubi alia fefellerunt."

Dr. Fisher, President of the Massachusetts Medical Society, divides the cases of epilepsy into three kinds; those in which the fits return daily; in which they revive at regular periods, as monthly, or give warning of their approach by previous symptoms; lastly, those in which they do not observe any regular period, and do not give any warning of their approach. In the first two kinds he asserts, that all the cases which came under his care, and which were not very few, had been cured by Stramonium. In those of the third kind, he found it of no benefit whatever. Dr. Arch, of Maryland, confirms his statement, by observing the same distinction in his practice.

Taken in large doses, and the system kept for some time under its influence, it has afforded decided relief in Tic Douloureux; and in the most severe, and best marked case of spasmodic asthma we ever witnessed, the inspissated juice of Stramonium, brought to its proper consistence by the spontaneous action of the atmosphere, was given in doses of a quarter of a grain every four hours, and speedily produced relief. It is also said to have been successfully administered in large doses for rabies, by the practitioners of India.

Dr. Marcet published the result of his experience with Stramonium, and states that many painful diseases were more relieved by it, when taken internally, than by any other narcotic substance; and although it frequently excites nervous sensations that are disagreeable, and somewhat alarming to the patient, yet they did not always occur; and its effects on the bowels are rather relaxing, than astringent. Sometimes it rendered the pulse slower.

Dose.—Of the inspissated juice, from half a grain to a grain.

Off. Prep.—Extract. Stramonii. *L.*

Leigh Hunt in his usual sparkling style gives a charming list of references to writers on the month of May.

"We cannot quote Brady; we cannot quote Brand; we cannot quote Aikin; nor Hone, nor Howitt, nor ourselves, (which is hard,) nor the venerable Stowe, nor Foster, nor Patmore; nor again, in poetry, may we repeat the quotation from Chaucer about May and the Daisy; nor Milton's Ode to May-morning; nor Spencer's joyous *dance* on the subject (in his Eclogues); nor his divine personification of the month in the Faerie Queene, Book VI.; nor Shakspeare's passage in Henry the Eighth, about the impossibility of keeping people in their beds on May-morning; nor Moore's "Young May-moon," ("young" moon for "new," so prettily turning Luna into a girl of fifteen); nor Thomson's rich landscape in the Castle of Indolence "atween June and May;" nor Mr. Loviband's "Tears of Old May Day; nor Gay on the May-pole, nor Wordsworth's bit about the month, (all whose bits are precious,) nor Dr. Darwin's ode, (which luckily is not worth quoting,) nor twenty other poets, great and small; nor Keats (one of the first) who has described a May-bush "with the bees about it." And so with this we conclude our list of negations; for even out of things negative, we would show how a positive pleasure may be extracted.

Thunbergia alata.

THUNBERGIA ALATA.—WINGED THUNBERGIA.

CLASS XIV. DIDYNAMIA.—ORDER II. ANGIOSPERMIA.

NATURAL ORDER, ACANTHACEÆ.———THE JUSTICIA TRIBE.

CHARACTER OF THE GENUS, THUNBERGIA. Calyx short, cupola-shaped, truncated or many toothed. Bractæ two, at the base of the calyx, larger than and including it. Corolla campanulato-funnel-shaped, throat inflated, limb five-cleft, spreading, subequal. Stamens four, didynamous, anthers erect; adnate, bilocular, the lobes parallel, coarsely ciliated, unequal at the base, the shorter having a bristle-like spur. Stigma funnel-shaped, sub-biliabiate; a thick nectariferous lobed ring embracing the base of the germen. Capsule globular at the base, bilocular, two-four seeded, attenuated into a beak. Dissepiment membranaceous, cohering in the centre, separable from the valves. Retinacula wanting, and the place supplied by a cartilaginous ring, embracing the base of the seed. Seeds globular, perforated at the base where the podosperm enters. Flowers axillary, pedunculate, solitary, or in racemes. Scandent plant, with handsome flowers, which are blue or yellow, the throat being generally darker.

DESCRIPTION OF THE VARIETY, THUNBERGIA ALATA-CLORANTHA. Stem twining, branched, hairy, compressed, hairs loosely reflexed. Leaves (two-and-half inches long, one-and-half broad) smaller upwards, petiolate, sagittato-deltoid, sinuated, pubescent on both sides, wrinkled, dark green above, paler below, midrib and veins channelled above, prominent below; petiole as long as the leaf, bordered with a narrow waved wing. Peduncles solitary, axillary, opposite, single flowered. Bracts coherent to about a quarter of their length on the lower side, rather more above, waved and pubescent. Calyx a small many-toothed cup, pale green, and pubescent. Corolla small, outside slightly glanduloso-pubescent; tube narrow, sub-cylindrical, and dark purple for about three times the length of the calyx, above this enlarged, compressed, paler and more leaden coloured, slightly falcate; limb orange-coloured, of five sub-linear emarginate lobes, concave, and tipped on the outer surface with green; faux deep purple, and, as well as the upper part of the inside of the tube, clothed with short purple hairs; two broad hairy lines extend from this along the inner side of the back of the tube, to the top of the narrow portion of the tube where the hairs are numerous, around the origin of the stamens; hairs jointed. Stamens subequal, filaments glabrous, green. Anthers yellow, cells unequal, the shorter cells in all the four stamens, spurred at the base, bursting along the front, and there ciliated. Stigma bilabiate, concave, the lower lip the shortest and broadest. Style straight, glabrous, much longer than the stamens. Germen bilocular, seated on a yellow disk, dark green, glabrous, compressed, sand-glass-shaped, the lower portion the largest, the upper nearly solid, each cell of the lower portion containing two ovules.

POPULAR AND GEOGRAPHICAL NOTICE. Nees von Esenbeck sub-divides this genus, and describes several species not before published. He doubts whether this should not, Thunbergia angulata, *Hooker*, and Thunbergia tomentosa, *Wall*, be removed from Thunbergia. The varieties of this species in point of colour, are now very numerous in our stoves. The one now figured, differs materially from any of them, but I doubt whether it will be permanent.

INTRODUCTION; WHERE GROWN; CULTURE. I have only seen this form in the nursery garden of Mr. Cunningham, Comely Bank, Edinburgh. It succeeds best in the stove, but I have seen it in flower in the open air, though of much smaller beauty.—GRAH.

DERIVATION OF THE NAME. Thunbergia, in commemoration of the Swedish Botanist and Traveller, Thunberg.

SYNONYME. Thunbergia Alata. Hooker; Exotic Flora, t. 177. Spreng.; Syst. vegt. cær. post. 237. Nees.; l. c. 3, 78.*

* For this description of the Thunbergia, as well as those of the Portulaca, Lophospermum, and Siphocampylus, in our preceding numbers, we are indebted to Mr. Maund's excellent publication, "The Botanist."

We will now indulge ourselves with a few extracts from "Harvey's Reflections on a Flower-Garden."

In a grove of tulips, or a knot of pinks, one perceives a difference in almost every individual. Scarce any two, are turned, and tinctured, exactly alike. Each allows himself a little particularity in his dress, though all belong to one family: so that they are various, and yet the same.—A pretty emblem this, of the smaller differences between Protestant Christians. There are modes in religion, which admit of variation, without prejudice to sound faith, or real holiness. Just as the drapery, on these pictures of the spring, may be formed after a variety of patterns, without blemishing their beauty, or altering their nature. Be it so then, that in some points of inconsiderable consequence, several of our brethren dissent; yet let us all live amicably and sociably together; for we harmonize in principals, though we vary in punctilios. Let us join in conversation, and intermingle interests; discover no estrangement of behaviour, and cherish no alienation of affection. If any strife subsists, let it be to follow our Divine Master most closely, in humility of heart, and unblameableness of life: let it be to serve one another most readily, in all the kind offices of a cordial friendship. Thus shall we be united, though distinguished; united in the same grand fundamentals, though distinguished by some small circumstantials; united in one important bond of brotherly love, though distinguished by some slighter peculiarities of sentiment.

Between Christians, whose judgments disagree only about a form of prayer, or manner of worship, I apprehend, there is no more essential difference, than between flowers which bloom from the same kind of seed, but happen to be somewhat diversified in the mixture of their colours.

And, shortly afterwards:

Another circumstance, recommending and endearing the flowery creation, is their regular succession. They make not their appearance all at once, but in an orderly rotation. While a proper number of these obliging retainers are in waiting, the others abscond; but hold themselves in a posture of service, ready to take their turn, and fill each his respective station, the instant it becomes vacant.—The Snowdrop, foremost of the lovely train, breaks her way through the frozen soil, in order to present her early compliments to her Lord. Dressed in the robe of innocency, she steps forth, fearless of danger; long before the trees have ventured to unfold their leaves, even while the icicles are pendant on our houses.—Next, peeps out the Crocus; but cautiously, and with an air of timidity. She hears the howling blasts, and skulks close to her low situation. Afraid she seems to make large excursions from her root; while so many ruffian winds are abroad, and scouring along the Æther.—Nor is the Violet last, in this shining embassy of the year. Which, with all the embellishments, that would grace a Royal Garden, condescends to line our hedges, and grow at the feet of briars. Freely, and without any solicitation, she distributes the bounty of her emissive sweets; while herself, with an exemplary humility, retires from sight; seeking rather to administer pleasure, than to win admiration. Emblem; expressive emblem, of those modest virtues, which delight to bloom in obscurity: which extend a cheering influence to multitudes, who are scarce acquainted with the source of their comforts! Motive, engaging motive, to that ever active beneficence, which stays not for the importunity of the distressed, but anticipates their suit, and prevents them with the blessings of its goodness.

The following verses are imitated from Theocritus, by Harvey:—

When snows descend, and robe the fields
  In winter's bright array;
Touch'd by the sun, the lustre fades,
  And weeps itself away.

When Spring appears; when violets blow,
  And shed a rich perfume;
How soon the fragrance breathes its last!
  How short-liv'd is the bloom!

Fresh in the morn, the Summer rose
  Hangs withering ere 'tis noon;
We scarce enjoy the balmy gift,
  But mourn the pleasure gone.

With gilding fire, an evening star
  Streaks the autumnal skies;
Shook from the sphere, it darts away,
  And in an instant, dies.

Such are the charms, that flush the cheek,
  And sparkle in the eye:
So, from the lovely finish'd form
  The transient graces fly.

To this the seasons, as they roll,
  Their attestation bring:
They warn the fair; their ev'ry round
  Confirms the truth I sing.

Nicotiana Tabacum.

NICOTIANA TABACUM.—VIRGINIAN TOBACCO.

CLASS PENTANDRIA.——ORDER MONOGYNIA.——NATURAL ORDER SOLANEÆ.

NIGHT-SHADE TRIBE.

ONE of the most powerful narcotics, and one of the most important plants of this group, in a commercial point of view, is the Tobacco. There are about thirty species of Nicotiana, and some of these are natives, or naturalized in most parts of the world, for although its use was known in Europe before the discovery of America, indulgence in its fume is so common, nay, so universal among the Chinese, and the forms of their bamboo pipes, and their methods of inhaling so peculiar, that Pallas and many others had been led to believe that the custom is aboriginal with them; and that they, and other nations of the east, were acquainted with its use before the discovery of the Western Hemisphere. Two or more species.

Chardin states, that its use was common in Persia long before the discovery of America, and that it is a native of that country, or at least was naturalized there as early as 1260; furthermore, Liebault asserts, that one species (his "Petit Tabac Sauvage,") is a native of Europe; and that it was found wild in the forest of Ardennes, previous to the discovery of the New World; this assertion seems, however, to be deficient in proof, and its correctness is doubted by most naturalists.

All the species of Nicotiana possess the same, or nearly similar properties; but two only, N. Tabacum, and N. Rustica, are in much repute, or are much cultivated for use. The specific name Tabacum is not, as was long supposed, a slight corruption of Tobago or Tobasco, whence the drug is brought, but is as Humboldt has shewn, the Haytian word for the pipe, in which it is smoked, and which has been transferred, like the term mate, [§1928] from the instrument to the herb.

The history of Tobacco is one of peculiar interest; it was first introduced into Europe about 1560, seeds being sent by Jean Nicot, from whom it derives its generic name, to Catherine de Medici; but it was not until 1586, that the use of the herb became generally known, and the practice of smoking introduced into England by Sir Walter Raleigh, and the Settlers who returned from Virginia. Harriott, who accompanied the expedition which was sent out to attempt to found a colony in Virginia, gives, with a long description of the Tobacco plant, an account of the manner in which it was used by the native Americans; and adds that the English, during the time of their stay abroad, and since their return home, were accustomed to smoke it after the fashion of the Indians, "and found many rare and wonderful experiments of the virtue thereof."

Tobacco encountered much violent opposition when its half-inebriating and soothing influence recommended it to popular use. Many governments attempted to restrain its consumption by penal edicts. The Sultan Amurath IV. forbade its importation into Turkey, and condemned to death those found guilty of smoking. The Grand Duke of Moscow prohibited its entrance into his dominions, under pain of the knout for the first offence, and death for the next; and in other parts of Russia the practice of smoking was denounced, and all smokers condemned to have their noses cut off; the Shah of Persia and other Sovereigns were equally severe in their enactments; and Pope Urban VIII. anathematized all those who smoke in churches. In 1654 the counsel of one of the Swiss Cantons cited all smokers before them; every innkeeper was ordered to inform against those who were found smoking in their houses; and in the laws of Bern there is conclusive evidence of the serious light in which this, at that time presumed crime, was held, for the prohibition of smoking immediately follows the enactment against adultery. But not only legislators, but philosophers, or at least book-makers, entered into a crusade against Tobacco; upwards of a hundred volumes, the names of which have been preserved, and the titles catalogued, were written to condemn its use; and amongst these, not the least singular was the counterblaste of our pedantic James. His vituperations indeed are most amusing; and although in some parts the language is too gross for modern taste, its tenor may be judged of from the following quotations.

"Now to the corrupted basenesse of the first use of this Tobacco, doeth very well agree the foolish and groundlesse first entry thereof into this kingdome; it was neither brought in by king, great conqueror, nor learned doctor of physicke. With the reporte of a great discovery for a conqueste, some two or three savage men were brought in, together with this savage custom, but the pitye is, the poore wild barbarous

men died, but that vile barbarous custom is yet alive, yea, in fresh vigour." His physiological arguments, out of respect to the monarch, may be passed over without notice, in truth they are not worth abridgment, but his details of the post mortem appearances of the body of an inveterate smoker, are too exquisite to be altogether omitted. "Surely smoke becomes a kitchen farre better than a dining chamber, and yet it makes a kitchen oftentimes in the inward parts of men, soyling and infecting them with an unctuous and oyly kind of soote, as hath been found in some great tobacco takers that after their death were opened." The monarch then enters into a pathetic expostulation with his loving subjects, and appeals to their patriotism, or rather national pride: "Now, my good countrymen, let us, (I pray you) consider what honour or policie can move us to imitate the barbarous and beastlie manners of the wild, godlesse, and slavish Indians, especially in so vile and filthy a custome. Shall we that disdain to imitate the manner of our neighbour, France, (haveing the style of the greate christian kingdom,) and that cannot endure the spirit of the Spaniards, (their king being now comparable in largenesse of dominions to the greatest emperor of Turkey;) shall we, I say, that have been so long civill and wealthy in peace; famous and invincible in war; fortunate in both. We that have been ever able to aid any of our neighbours, (but never deafened any of their ears with any of our supplications for assistance;) shall we, I say, without blushing, abase ourselves so far as to imitate these beastlie Indians, slaves to the Spaniards, the refuse of the worlde, and as yet aliens from the holy covenant of God? Why do we not as well imitate them in walking naked as they do, in preferring glasses, feathers, and toys, to gold and precious stones, as they do? yea, why do we not deny God, and adore the devils, as they do? Have you not then reasons to forbear this filthie noveltie, so basely grounded, so foolishly received, and so grosslie mistaken in the right use thereof? In your abuse thereof, sinning against God, harming yourselves both in person and goods, and taking also thereby the marks and notes of vanitie upon you, by the custome thereof, making yourselves to be wondered at by all forreine civill nations, and by all strangers that come among you, to be scorned and contemned; a custome loathsome to the eye, hateful to the nose, harmfull to the brain, dangerous to the lungs, and in the blacke stinking fume thereof, nearest resembling the horrible stigian smoke, of the pit that is bottomless."

Of the sincerity of the royal anti-tobacconist there can be no doubt, if any reliance may be placed on energy of expression, or on his almost unequalled force of language. But notwithstanding all opposition, smoking and snuffing have spread not only through polished, but savage countries; and instead of being "scorned and contemned by strangers," and "wondered at by all forreine civill nations," the English now are countenanced, nay, not only equalled, but exceeded, in the custom by many other people; for, during the reign of George III. the practice of smoking declined in this country, although since the peace it has been again in some part revived.

"In Spain, France, and Germany, in Holland, Sweden, Denmark and Russia," says a writer in the Asiatic Journal, xxij. 142, "the practice of smoking prevails among the rich and poor, the learned and the gay. In the United States of America smoking is often carried to an extreme excess. It is not uncommon for boys to have a pipe or cigar in their mouth during the greater part of the day. The death of a child is not unfrequently recorded in American newspapers with the following remark subjoined: Supposed to be occasioned by excessive smoking.

If we pass to the east, we shall find the practice almost universal. In Turkey the pipe is perpetually in the mouth; and the most solemn conferences are generally concluded with a friendly pipe, employed like the calumet of peace among the Indians. In the East Indies not merely all classes, but both sexes, inhale the fragrant steam; the only distinction among them consisting in the shape of the instrument employed, and the kind of herb smoked. In China the habit equally prevails. Barrow states that, every Chinese female, from eight to nine years old, wears as an appendage to her dress, a small silken purse or pocket to hold tobacco, and a pipe, with the use of which many of them are not unacquainted at this tender age.

That excessive smoking is injurious, like excessive indulgence of any other kind, there is no doubt, and those who are guilty of such excess must expect to suffer for their imprudence or their folly; but that there is anything peculiarly injurious in the use of Tobacco, whether chewed, smoked, or snuffed, remains to be proved. The evidence on the contrary, would seem to shew that it is one of the less injurious excitants and sedatives. Dr. Thompson observes, that in the snuff manufactories of France, where 4,000 persons are employed, and where from their constant exposure to the influence of Tobacco, to a much greater extent than the consumers can be, it has been ascertained that they live as long, and are as healthy as manufacturers in general. Such being the facts, putting all prejudice aside, and believing from accumulated evidences, the pleasurable sensations which the slight stimulus of a pinch of snuff gives

rise to, a pleasure which can be resorted to so much more often, and with so much less probability of being injurious, than any other stimulus; and having watched the composing influence of a cigar, the contentment which springs up in the mind as the smoke rises in the air, the calmness and satisfaction it produces, and the temporary happiness of which it is the cause, it does seem, at least to one who, be it observed, neither smokes, snuffs, nor chews Tobacco, not wonderful that the custom of smoking and taking snuff should prevail amongst all people, and in all countries; nor is there any sound argument to be raised against the practice; indeed the discontinuance of that which so materially increases the sum of human happiness would be greatly to be deplored; philippics and royal anathemas have long since ceased, and legislatorial prohibitions have been evaded or repealed; whether this may have been the result of a rational conviction of its utility, or whether the fact of a very considerable part of the revenues of all sovereigns of Europe, as well as of those of most other parts of the world, being derived from a duty on Tobacco, may have had any thing to do with the present state of toleration, it imports us not to determine, but it seems not improbable that the tone of our James's counterblaste would have been very much subdued, had he been forewarned that, by a duty levied on Tobacco, between three and four millions a year might be added to the revenue of his kingdom; and, truly, when persons are content to tax themselves to such an amount for the enjoyment of a harmless luxury, he must be a tyrant indeed who would set his veto against the indulgence.

Tobacco is used medicinally in powder as an errhine, an infusion as an expectorant and sedative, and in vapour both as an anti-spasmodic, and to bring on nausea and fainting. Tobacco is often employed as a masticatory, but this is the least commendable mode of use; it impairs the appetite, brings on torpor of gastric nerves, and hence, although it may at times be convenient to appease the calls of hunger without eating, yet the practice of chewing Tobacco when indulged in, as it sometimes is by the lower classes, is commonly followed by the distressing train of symptoms familiar to all, as the Protean forms of Dyspepsia.

The active properties of Tobacco appear to depend upon two proximate principles, which bear a considerable resemblance to each other, and which some authorities believe to be only varieties of one and the same body; these have been called Nicatine and Nicotianine; the latter, which is procured from the leaves by simple distillation, appears to be a solid volatile oil; it is poisonous, and resembles in its effects ordinary Tobacco in a concentrated form. The former, when pure, is a colourless fluid, extremely acrid and pungent, and most virulently poisonous; it has been extracted both from the seeds and leaves; besides these, there has been procured an empyreumatic oil, by destructive distillation, which probably contains both the preceding substances, mixed with various impurities; this oil is formed whenever Tobacco is burned; and it was first noticed, or at least first made use of, by the Hottentots, who are accustomed to poison snakes by putting a drop of it on their tongues; the effect of the application, Barrow says, is instantaneous, almost like that of an electric shock; and many experiments which have been made by Brodie and others, as well as some accidents which have occurred, prove that the oil of Tobacco is one of the most active poisons known. In some peculiar constitutions, even small quantities of the powdered leaves or their fumes have proved injurious or even fatal. The celebrated Santeuil is said to have experienced vomitings and horrible pains, amidst which he expired, in consequence of having drank a glass of wine into which some Spanish snuff had been put; intoxication, vomiting, faintings and other untoward symptoms have been known to follow the application of Tobacco ointment to scald heads; and Mr. Howison gives a very interesting account of a kind of trance into which he was thrown, being conscious of all around, but unable to move or speak, from lying down to sleep among numerous packages of fresh tobacco.

It is supposed that "the juice of cursed hebenon," by which, according to Shakspeare, the king of Denmark was poisoned, was the essential oil of Tobacco:—

> ——— "Sleeping within mine orchard,
> My custom always of the afternoon,
> Upon my secure hour thy uncle stole,
> With juice of cursed hebenon in a vial,
> And in the porches of mine ears did pour
> The leperous distilment."

The learned commentator, Dr. Gray, observes that the word here used (hebenon,) was more probably designated by a metathesis, either of the poet or transcriber, for hebenon, i. e. henbane. Now it appears from Gerarde, that Tobacco was commonly called henbane of Peru, (Hyoscyamus Peruvianus;) No preparation of Hyoscyamus with which we are acquainted, would produce death by an application to the ear; whereas the essential oil of Tobacco might, without doubt, occasion a fatal result."

G. T. Burnett.

The leaves retain their green colour when properly dried; their brown colour being produced purposely by the action of a little sulphate of iron.

In Constantinople where its use is now so general, the custom was, in the beginning of the 17th century, thought so ridiculous and hurtful that any Turk who was found smoking, was conducted in ridicule through the streets with a pipe transfixed through his nose. Tobacco which has been introduced into the Sandwich Islands by Europeans is now, says Kotzebue, (vide Voyage of Discovery) so generally used, that young children smoke before they learn to walk, and grown up people have carried it to such an excess, that they have fallen down senseless, and often died in consequence.

When the use of snuff has become habitual, it cannot be relinquished without considerable risk, arising from the suspension of artificial discharge it produces, as Dr. Cullen observed from his experience.

Tobacco is subject to be destroyed by a worm, and without proper care to exterminate this enemy, a whole field of plants may soon be lost. It appears to be peculiar to the Tobacco plant, so that in many parts of America it is distinguished by the name of the Tobacco worm, they are found in greatest numbers in July and August.

Tobacco in the countries of which it is a native is considered by the Indians as the most valuable offering that can be made to the being they worship; they use it in all their civil and religious ceremonies. When once the spiral wreath of its smoke ascends from the feathered pipe of peace, the compact that has been just made is considered so sacred and inviolable, that few instances have occurred in which it has been violated.

The following nice calculation is given to those who study economy. Every professed and incurable snuff-taker, at a moderate calculation, takes one pinch in ten minutes. Every pinch, with the disagreeable ceremony of blowing and wiping the nose, and other incidental circumstances, consumes a minute and a half. One minute and a half out of every ten, allowing sixteen hours to a snuff-taking day, amounts to two hours and twenty four minutes out of every day of twenty four hours, or to one day out of ten, and one day out of every ten will amount to thirty six and a half days in the year, or to seven years of wasted time out of that short life which is allowed us for far other purposes; compute now the expense, and it will be found that this luxury encroaches as much on the income of the snuff-taker as it does on his time, and that the time and money thus lost, would have enabled the tradesman to enjoy many real comforts in his family, and perhaps to save up a little store against a time of sickness and distress.

Annual. Height, four or five feet. Seed may be sown in February or March. Transplant in May.

Valeriana officinalis.

VALERIANA OFFICINALIS.—GREAT WILD VALERIAN.

Class III. TRIANDRIA.—Order I. MONOGYNIA.

Natural Order, VALERIANEÆ.——THE VALERIAN TRIBE.

Figs. (*a*) and (*b*) are two views of the corolla magnified.

The great wild Valerian, Valeriana *officinalis* of Linnæus, or Valeriana *sylvestris major montana* of Bauhin, is a perennial indigenous plant, growing on the banks of rivers and ditches, and in dry mountainous woods and pastures; flowering from June to August.

The root of this species of Valerian is composed of several long, slender fibres, of a dusky brown colour, approaching to olive, that issue from one head. The stem is erect, furrowed, hollow, smooth, and branched; it rises to the height of three or four feet. The leaves are of a deep glossy green, serrated, a little hairy on the under surface, growing opposite, in pairs on foot-stalks, and are all pinnated, but differ in different parts of the plant, in the number of leaflets. In the lower leaves there are generally ten pairs; in those on the stem nine; and towards the top five or seven only; hence the leaf, except towards the bottom of the plant, is always terminated by an odd leaflet. The radical leaves are larger, and stand upon long footstalks: the *pinnæ* are elliptical, and deeply serrated; the bracteas, or floral leaves, are lanceolate and pointed. The flowers, which are small, and of a reddish white colour, are disposed in large dense aggregates, or corymbiform panicles, at the extremities of the stem and branches, and contain both stamens and pistils, whereby the present species may at once be distinguished from the V. *dioica*. The calyx is a slight border, subsequently expanding into a crown for the seed. The corolla is tubular, with a protuberance at the base, and divided at the limb into five obtuse, somewhat unequal segments. The stamens are three, awl-shaped, and support oblong yellow anthers. The germen is inferior, oblong, having a thread-shaped style the length of the stamens, and terminated by a trifid stigma. The seeds are ovate-oblong, compressed, and crowned with a feathery pappus of ten rays.

The V. *locusta*, corn salad, or lamb's lettuce, is sometimes cultivated in gardens for salad; and of the Officinal Valerian there are two varieties; one growing in woods and moist places, the other on dry heaths and high pastures. Both sorts have been used indiscriminately, but the latter variety is esteemed of far greater efficacy than the marshy sort. It is principally distinguished by the leaves being narrower, and of a duller green; and by its stronger smell, and more humble growth.

This plant having till lately been generally regarded as the celebrated φου, or Valerian of Dioscorides, has been extensively employed as an article of the Materia Medica. Dr. Sibthorp, in his Greek tour, however, has ascertained that the real plant of the ancients is a distinct species, which he has figured and described under the name of Valeriana *Dioscoridis*. It was gathered by the learned author near the river Limyrus in Lycia; and has a much more pungent and more durable, and yet less nauseous odour, than the plant here represented.

Culture.—In Derbyshire, Valerian is planted in rows twelve inches apart, and the plants six inches asunder. Soon after it comes up in the spring, the tops are cut off to prevent its running to seed, which spoils it. At Michaelmas the leaves are pulled off and given to cattle, and the roots dug up, and cleanly washed, and the remaining top is then cut close off, and the thickest part slit down to facilitate their drying, which is effected on a kiln, after which they must be packed tight and kept very dry, or they will spoil. The usual produce is about 18 cwt. per acre.

Qualities & Chemical Properties. The leaves have a saltish taste, but little or no smell. The roots, particularly the mountain sort, are bitter, subacrid, and of an aromatic and penetrating odour. The smell of the roots is very alluring to cats, and rat-catchers employ it to entice rats, who are also fond of it. Trommsdorff has examined the root of the Valeriana *Officinalis*. It loses three-fourths of its weight by drying. Distilled with water it yields a volatile oil, very liquid, and of a greenish white colour. Its odour is strong and camphoric; its specific gravity, at the temperature of 77°, is 0,9430; its taste is aromatic and camphoric, without being acrid. Nitric acid converts it into a resinous substance, or, if it be used in a sufficient quantity, into oxalic acid. The expressed juice of the roots has a strong odour, and is muddy. It lets fall a portion of starch. It contains a peculiar substance approaching the nature of extractive, solubl in water, insoluble in ether or in pure alcohol. It is precipitated from water by the salts of lead, silvee

mercury, and antimony. The juice also contains a portion of gum. The roots, deprived of this juice, yield a portion of black-coloured resin, but consist chiefly of woody fibre. *Annales de Chimie*, t. xx. p. 384.

MEDICAL PROPERTIES AND USES &c.—Valerian has long been esteemed an excellent remedy in various affections of the nervous system, especially in hysteria, chorea, and epilepsy; and when those diseases seem to depend rather on increased susceptibility than on organic derangement, it is frequently useful. Fabricius Columna first discovered its antispasmodic powers, having cured himself of epilepsy by the powdered root, when many other powerful medicines had failed.

Dr. Scopoli relates the case of a young man who having become subject to epilepsy from fright, was shortly cured by the use of the valerian powder. M. Marchant has also related many cases of its success in the same disease. A fact supported by the testimony of others. It has been found extremely beneficial in many cases of hysteria, and hemicrania, especially when combined with bark, or the volatile alkali; and conjoined with guaiacum, it is beneficially employed for strumous enlargement of glandular structures. Dr. Cullen strongly recommends the root of that which has grown in a dry calcareous soil for hysterical affections. Dr. Withering speaks of it as a useful remedy for habitual costiveness; and, although its aperient qualities can no more be relied on than its diuretic, or anthelmintic ones, we consider it to be among the most powerful of the vegetable antispasmodics. The powder is the best mode of administration; and Lewis justly remarks that its taste is best covered by a suitable addition of *mace*.

DOSE.—When given in substance the dose may be from ℈j to ʒj twice or thrice in twenty-four hours: of the ammoniated tincture, which is a better preparation than the simple tincture made with proof spirit, the dose is from ʒj to ʒij.

OFF. PREP.—Tinctura Valerianæ. *L. D.*
Tinctura Valerianæ ammoniata. *L. E. D.*
Extractum Valerianæ. *D.*
Infusum Valerianæ. *D.*

The odour of Valerian, says Professor Burnett, seems to be most peculiarly agreeable to cats, who will chew its roots, roll on it, and become for a time intoxicated under its influence. Rat-catchers are also said to use it as they do oil of anise, to draw their prey together; for rats, like cats, appear to be spell-bound by its power. And although the odour is in general thought unpleasant by European nostrils, it is so much admired by Eastern nations, that some of the most esteemed Asiatic perfumes are composed of Valerian: and *Valeriana Celtica*, which is the Celtic spikenard, is often used to impregnate the waters of baths, and render them fragrant. *Nardostachys* (olim *Valeriana*) *Jatamansi* is believed to be the true spikenard of the ancients.

"The red-flowered Valerian," says the author of the "Sentiment of Flowers," "has but recently been introduced into our gardens from the Alpine rocks, where it grows naturally. Its appearance is showy, but always disordered. In its cultivated state it still has the bearing of a rustic, which imparts to it somewhat of the air of a *parvenu;* notwithstanding, this wild beauty owes its fortune to its merit. Its root is an excellent remedy for those diseases which produce weakness; an infusion of it strengthens the sight, re-animates the spirits, and drives away melancholy. It continues in flower nearly the whole year, and is much improved by cultivation, though it never disdains its wild origin, but often quits our borders to deck the sides of a barren hill, or to climb over old and ruined walls. The Valerians of our woods and our fields possess greater medicinal virtues and as much beauty as this emblem of an accommodating disposition; but they are neglected by the florist because they yield not so gracefully to his training hand as that derived from the Alps. It is difficult to say whence it derives the name of Valerian; Linnæus supposes it to be named after a certain king, Valerius, whilst De Théis thinks it altered from the verb *valere* on account of its medicinal qualities.

Old Gerarde says of Valerian or Setwall, "the dry root as *Dioscorides* teacheth, helpeth the paine in the sides; and is put into counterpoysons and medicines preseruative against the pestilence, as are treacles, mithridates, and such like: whereupon it hath been had (and is to this day among the poor people of our northerne parts) in such veneration amongst them, that no broths, pottage or physicall meats are worth any thing, if Setwall were not at an end: whereupon some woman Poet or other, hath made these verses:

They that will have their heale,
Must put setwall in their keale.

It is used generally in sleight cuts, wounds, and small hurts. The extraction of the roots giuen, is a most singular medicine against the yellow jaundice."

The Red Valerian is the emblem of an *accommodating disposition*.

Dionæa Muscipula?

DIONÆA MUSCIPULA.—VENUS'S FLY-TRAP.

CLASS X. DECANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, DROSERACEÆ.——THE SUN-DEW TRIBE.

DIONÆA (one of the names of Venus.) Sepals and petals 5. Stamens 10-20; anthers bursting laterally. Style 1. Stigma fringed. Capsules 5-valved, 1-celled. Seeds numerous, half buried in the cellular substance at the base of the capsule.

Herb smooth. Leaves radical, on long footstalks, which are dilated at the top into a 2-lobed irritable limb, which is beset with one row of long hairs on the margin, which fold together when touched in the manner of the teeth of a trap. Flowers white, in terminal corymbs. This is a singular plant in respect of its leaves, which are of an anomalous form, and have a singular motion by which they catch insects, whence the specific name *muscipula*, a fly-trap. The root is scaly, almost like a bulb, and not prolific in fibres. The leaves have the petiole winged as in the orange; the extreme part or proper leaf is the part that operates as the trap. As soon as the insect enters, the lobes of the leaf fold together, and remain so as long as the insect continues to struggle, but as soon as it ceases and is quiet the leaf opens and permits it to escape. A straw or pin introduced between the lobes of the leaf will have the same effect. Mr. Ellis thinks it probable that a sweet liquor discharged by the red glands on the inner surface tempts insects to their destruction. "On the side of each lobe of the leaf stand about three erect, highly irritable bristles, which, when touched, cause the two lobes to fold together like a rat-trap, imprisoning insects; no doubt that their bodies may administer an air wholesome to the plant, which theory and recent observations on *Sarracènia*, *Drósera* and *Nepénthes* confirm." Smith, introd. bot.

Venus's *Fly-trap*. Fl. July, Aug. Clt. 1768. Pl. ¼ to ½ ft.

Cult. This plant thrives best in small pots in peat earth, and some dwarf species of moss placed underneath in the pot; the pots should then be placed in a pan of water and set in a cool place near the glass in the stove. Seeds are sometimes produced, by which they may be increased as well as by dividing the plants at the root. Mr. Shepherd of Liverpool finds that the leaves will root, if placed on damp moss, and emit young plants from their edges.

A popular writer says, "on Monday next is May-morning;—a word, which used to awaken in the minds of our ancestors all the ideas of youth, and verdure, and blossoming, and love, and hilarity; in short the union of the two best things in the world, the love of nature, and the love of each other. It was the day, on which the arrival of the year at maturity was kept, like that of a blooming heiress. They caught her eye as she was coming, and sent up hundreds of songs of joy.

Now the bright morning-star, day's harbinger,
Comes dancing from the east, and leads with her
The flowery May, who from her green lap throws
The yellow cowslip, and the pale primrose.
Hail bounteous May, that dost inspire
Mirth, and youth, and warm desire;
Woods and groves are of thy dressing;
Hill, and dale, doth boast thy blessing.
Thus we salute thee with our early song,
And welcome thee, and wish thee long.

These songs were stopped by Milton's own friends, whom in his old age he again differed with, most likely on these very points among others. But till then, they appear to have been as old, all over Europe, as the existence of society. The Druids are said to have had festivals in honour of May. Our Teutonic ancestors had undoubtedly; and in the countries which had constituted the Western Roman Empire, Flora still saw thanks paid for her flowers, though her worship had gone away.[a]

The homage, which was paid to the month of love and flowers, may be divided into two sorts, the general and the individual. The first consisted in going with others to gather May, and in joining in sports and games afterwards. On the first of the month, "the juvenile part of both sexes," says Bourne, in his Popular Antiquities, "were wont to rise a little after midnight and walk to some neighbouring wood, where

[a] The great May holiday observed over the West of Europe was known for centuries, up to a late period, under the name of Beltein or Beltane. Such a number of etymologies, all perplexingly probable, have been found for this word, that we have been surprised to miss among them that of bel-temps, the fine time or season. Thus printemps, the first time or prime season, is the spring.

they broke down branches from the trees, and adorned them with nosegays and crowns of flowers. When this was done, they returned with their booty about the rising of the sun, and made their doors and windows to triumph in the flowery spoil. The after part of the day was chiefly spent in dancing round a May-pole, which being placed in a convenient part of the village, stood there, as it were, consecrated to the goddess of flowers without the least violation offered to it, in the whole circle of the year." Spenser, in his Shepheard's Calendar, has detailed the circumstances, in a style like a rustic dance.

Young folke now flocken in—every where
To gather May-buskets—and smelling brere;
And home they hasten—the postes to dight,
And all the kirk-pillours—eare day-light,
With hawthorne buds—and sweet eglantine,
And girlonds of roses—and soppes in wine.
* * * * * * * *
Sicker this morowe, no longer agoe,
I saw a shole of shepherds outgoe
With singing, and shouting, and jolly chere;
Before them yode a lustie tabrere,
That to the many a hornpipe played,
Whereto they dauncen eche one with his mayd.
To see these folks make such jovisaunce,
Made my heart after the pipe to daunce.
Tho to the greene wood they speeden hem all,
To fetchen home May with their musicall,
And home they bringen, in a royall throne,
Crowned as a king; and his queen attone
Was Lady Flora, on whom did attend
A fayre flocke of faeries, and a fresh bend
Of lovely nymphs. O that I were there
To helpen the ladies their May-bush beare.

The day was past in sociality and manly sports;—in archery, and running, and pitching the bar,—in dancing, singing, playing music, acting Robin Hood and his company, and making a well-earned feast upon all the country-dainties in season. It closed with an award of prizes.

As I have seen the Lady of the May,
Set in an arbour, on a holiday,
Built by the Maypole, where the jocund swains
Dance with the maidens to the bag-pipe's strains,
When envious night commands them to be gone,
Call for the merry youngsters one by one,
And for their well performance soon disposes,
To this a garland interwove with roses,
To that a curved hook, or well-wrought scrip,
Gracing another with her cherry lip;
And none returneth empty, that hath spent
His pains to fill their rural merriment.

Among the gentry and at court the spirit of the same enjoyments took place, modified according to the taste or rank of the entertainers. The most universal amusement, agreeably to the general current in the veins, and the common participation of flesh and blood, was dancing. Contests of chivalry supplied the place of more rural gymnastics. But the most poetical and elaborate entertainment was the mask. A certain flowery grace was sprinkled over all; and the finest spirits of the time thought they shewed both their manliness and wisdom, in knowing how to raise the pleasures of the season to their height. Sir Philip Sydney, the idea of whom has come down to us as a personification of all the refinement of that age,—is fondly recollected by Spenser in this character.

His sports were faire, his joyance innocent,
Sweet without soure, and honey without gall;
And he himself seemed made for merriment,
Merrily masking both in bowre and hall.
There was no pleasure nor delightfull play,
Wherein Astrophel soever was away.
For he could pipe, and dance, and caroll sweet,
Amongst the shepherds in their shearing feast;
As somer's larke that with her song doth greet
The dawning day forth coming from the east.
And layes of love he also could compose:
Thrice happie she, whom he to praise did choose.

Astrophel St. 5.

Individual homage to the month of May, consisted in paying respect to it though alone, and in plucking flowers and flowering boughs to adorn apartments with.

This maiden, in a morn betime,
Went forth when May was in the prime
To get sweet setywall,
The honey-suckle, the harlock,
The lily, and the lady-smock,
To deck her summer-hall.

Drayton's Pastorals, Eclog. 4.

"The Catchfly," says the author of the "Sentiment of Flowers,"—"is a simple emblem of the gross snares which vice spreads for unwary and imprudent youth. Flies attracted by the evil odour of this plant become entangled in its leaves, and are not able to disengage themselves."

Vitis vinifera.

VITIS VINIFERA.—GRAPE VINE.

CLASS V. PENTANDRIA.————ORDER I. MONOGYNIA.

NATURAL ORDER, VITES.—THE VINE TRIBE.

FIG. (*a*) Represents the unexpanded flower.
(*b*) The same, showing the petals fully expanded and cohering at the apex, before they fall, and suffer the anthers to spread and shed their pollen. (*c*) A magnified flower, the petals being removed, showing the calyx, with the germen and stamen. (*d*) A small cluster of flowers.

THE early history of the vine is involved in considerable obscurity, for the oldest profane writers that mention it, ascribe to it a fabulous origin. According to Baron Humboldt it grows wild on the coasts of the Caspian sea, in America, and Georgia; and it is naturalized, at least, in most of the temperate regions of the globe. Dr. Sibthorp and his friend Mr. Hawkins, judged it to be completely wild on the banks of rivers in Greece. It is probable, that the culture of the vine was introduced from the east; for in the sacred writings we are told, that Noah, after coming out of the ark, planted a vineyard, and 'drank of the wine, and was drunken.' The tradition of the ancient Egyptians inform us that Osiris first paid attention to the vine, and instructed other men in planting and using it. The inhabitants of Africa ascribe the cultivation of the vine, and the art of making wine from the fermented juice of the grape, to the ancient Bacchus. Dr. Sickler, who regards this useful plant of Persian origin, has given a learned and curious account of its migration to Egypt, Greece, and Sicily.* From Sicily it is supposed to have extended to Italy, Spain, and France; and in the latter country it is believed to have been cultivated in the time of the Antonines, in the second century. The Phocians are said to have carried it to the south of France, and the Romans planted it on the banks of the Rhine. The vine, which is found wild in America, is very different from our Vitis *vinifera*; it is therefore, a popular error that the grape was common to both continents.† In very cold regions the vine refuses to grow, and within 25° or even 30° of the equator, it seldom flourishes so as to produce good fruit. In the northern hemisphere its culture forms a branch of rural economy from the 21° to the 51° of northern latitude, or from Schiraz in Persia to Coblentz on the Rhine. "Some vineyards," says Mr. Loudon, "are found near Dresden and in Moravia, and by means of garden culture, it is made to produce fruit to a considerable degree of perfection in the hot-houses of St. Petersburgh and Stockholm."

The grape vine has a slender, twisted, irregular stem, sending out long, trailing, flexible, leafy, furrowed branches, which climb by means of tendrils to a great extent, and when young are clothed with loose shaggy down. The leaves are roundish, heart-shaped, notched, coarsely serrated, veiny, divided into five more or less distinct lobes, and are placed alternately on longish footstalks; when young they are like the branches, especially beneath; but otherwise naked and smooth. The tendrils are opposite to each footstalk; they are solitary, spiral, divided, and about the length of the leaves. The flowers, which appear in Greece in May or June, are very small, of an herbaceous colour, and fragrant like Mignonette, and are produced in clusters. The clusters are drooping, panicled, much branched, with the ultimate stalks somewhat umbellate or corymbose. Each flower consists of five oblong, erect petals, cohering by their summits, downy at the top, and ultimately forced from their base by the stamens, which elevate them in the form of an umbrella. The calyx is very minute: the stamens are filiform, smooth, with oblong, incumbent anthers. The germen is superior, roundish, with a short style, and simple stigma. The fruit is a succulent globular berry, in the wild state not much larger than a pea, of a black colour, and containing five hard, irregular seeds. In the cultivated varieties the berry is frequently oval, oblong, or finger-shaped, and the principal colours are various shades of green, yellow, amber, and black.

The grape vine is generally supposed to have been introduced into this country by the Romans; but from Tacitus we learn, that it was not known when Agricola commanded in the island. At the invasion of the Saxons, however, under Hengist and Horsa, A. D. 449, the vine, it is said, was extensively cultivated; and vineyards are mentioned in the earliest Saxon charters, as well as gardens and orchards. In Domesday Book, vineyards are noticed in several counties. William of Malmesbury, who flourished in the first half of

* *Geschichte der Obst Cult. v.* 1.

† Humboldt, *Géographie des Plantes*, 4to. *p.* 26.

the twelfth century, informs us in his book, "De Pontificibus," that the vale of Gloucester used to produce as good wine as many of the provinces of France. From the date of the Conquest to the period of the Reformation, vineyards appear to have been attached to all the abbeys and monastic institutions in the southern parts of the island. But about the time of the Reformation, when the ecclesiastical gardens were either neglected or destroyed, ale, which has been known in England for many centuries, seems to have superseded the use of wine as a general beverage. In the "Museum Rusticum," it is stated, that a vineyard was planted at Arundel Castle in Sussex, about the middle of the last century; and that of its produce, there are reported to have been in the Duke of Norfolk's cellars, sixty pipes of wine resembling Burgundy. Bradley informs us, that R. Warner, a gentleman of Rotherhithe, made good wine from his own vineyards, and Barry, in his "History of Wines," gives an account of one formed by the Hon. Charles Hamilton at Pain's Hill, in Miller's time, which succeeded for many years, and produced excellent champagne. Although there can be no doubt, as Professor Martyn observes, that vineyards would succeed in the southern and western parts of England in proper soils, and produce wine equal to much that is imported from abroad; yet, in a national point of view, we may conclude with Mr. Loudon, that, "the culture of the vine as a branch of rural economy, would not be a profitable concern here, on the broad general principle, that it cannot be worth while to grow any thing at home, which we can get cheaper from abroad."

The vine grew plentifully in Palestine, and was particularly fine in some parts of its districts; one of which has been thus celebrated:—

"In yonder vale, where Eshcol flows along
Behold, a mountain rising to the skies!
Above it towers the sun—sublimely high;
While its bright beams its lofty top makes bare.
To its steep side the vine, luxuriant cleaves;
Tender in shoot; yet large in leaf, and high,
Its purple fruit, delicious to the taste,
Producing wine to cheer the heart of man,
To heal the sick, and to support the weak—
To comfort all."

The bunch of grapes which was brought by the spies to the camp of Israel astonished the people, and we are assured by travellers that in the valley of Eshcol, there were bunches of grapes of ten and twelve pounds weight. One of them even states, that he was informed by a person who lived many years in Palestine, that there were bunches of grapes in the valley of Hebron so large that two men could scarcely carry one. The prediction of the lot of Judah, in the partition of the Promised Land, included abundance of vines, so hardy that a colt might be bound to them; and in some parts of Persia, it was formerly the custom to turn the cattle into the vineyards after the vintage, to browse on the vines, some of which are so large that a man can hardly compass the trunks in his arms. The same custom, too, appears to have prevailed generally in Lesser Asia. Galilee would now be a paradise were it inhabited by an industrious people, under an enlightened government. Vine stocks are to be seen here a foot and a half in diameter, forming, by their twining branches, vast arches, and extensive ceilings of verdure; "A cluster of grapes, two or three feet in length, will give," says Schutze, "an abundant supper to a whole family." In France, the vines are trained on poles, seldom more than three or four feet high; in Spain, poles are not used, but cuttings are planted, which, not being permitted to grow very tall, gradually form thick stout stocks; in Switzerland and the German provinces, the vineyards are as uninteresting as those of France; but in Italy, the vine surrounds the stone cottage with its girdle, flings its plant and luxuriant branches over the rustic veranda, or turns its long garland from tree to tree. In Greece, the shoots of the vine are either trained upon trees, or supported, so as to display all their luxuriance. In Persia, they cause their vines to run up a wall, and curl over on the top; and, in some parts of the east, the stairs leading to the upper apartments of the harem are commonly covered with vines; a lattice work of wood is often raised against the dead walls, for a vine or other shrub to crawl upon; and not unfrequently appears "the fruitful bough by a well," for a vine may be seen covering the trellis work surrounding it, and inviting the owner and his family to gather beneath its shade.

The *varieties* of the vine are exceedingly numerous; the lists of some of our nurserymen at the present day containing more than 250 names.

The age to which the vine will attain, is supposed to equal or even surpass that of the oak; it spreads also to a great extent, and when supported, rises to a considerable height. Pliny speaks of a vine which had existed six hundred years, and Bosc says, there are vines in Burgundy upwards of four hundred years of

age. In Italy, they are found over-topping the tallest elm and poplar trees; and the wood of very old ones is frequently of size enough for being sawn into planks. A vine, trained against a row of houses at Northallerton, covered, in 1785, one hundred and thirty-seven square yards, and measured four feet in circumference: it was then above one hundred years old, but is now dead. That at Hampton Court, nearly of the same age, covers above one hundred and sixteen square yards: it is of the red Hamburgh sort, and is a most productive bearer, having seldom fewer than 2,000 clusters upon it every season. In the year 1816, there were at least 2,240 averaging one pound each, so that the whole crop weighed a ton, and, merely as an article of commerce, was worth upwards of £400.

Raisins or dried grapes, are prepared either by cutting the stalks of the bunches half through, and leaving them suspended on the vine, till they become sufficiently dry; or by gathering the grapes when they are fully ripe, and dipping them in a ley of the burnt tendrils, to which is added a small portion of slaked lime, and afterwards exposing them to the sun to dry. About 8,000 tons of raisins are annually imported into England; and a considerable quantity of undried grapes are also imported, principally from Portugal, in jars, among saw-dust. *Currants*, of which about 6,000 tons are annually imported into this country, are small dried grapes, principally grown in the Ionian islands.

The *juice of the grape* consists of water, sugar, mucilage, jelly, albumen, gluten, super-tartrate of potass, and the tartaric, citric, and malic acids. These principles left to themselves for a short time in a medium temperature, undergo remarkable changes; their elements assume a new arrangement, and the principal compounds which are formed are *wine* and *acetic acid*.

Wine.—When the fruit is fully ripe, it is gathered for the manufacture of *wine*, and immediately subjected to the press, in order to separate the juice from the skin and seeds. In some places, however, the grapes are permitted to remain on the vines till they wither, or are gathered or dried in the sun, before they are pressed. Thus the celebrated Tokay wine is made of dried fruit, as are many of the luscious wines of Italy. Sometimes the juice is separated by treading the grapes with the feet, in perforated tubs or baskets placed over the vat destined to receive the must. The expressed juice, or *must*, as it is called, is then put into a proper vessel or vat, and exposed to a temperature of at least 55 degrees, to enable it to commence the fermentative process. In a short time the liquor becomes turbid, an intestine motion is excited in it, its temperature increases, the skins, seeds, and other impurities rise to the surface, and a quantity of carbonic acid gas is disengaged. When the fermentation is finished, the spongy crust which forms on its surface falls to the bottom; the liquor becomes clear, having lost its saccharine taste, and become wine. If we now examine the liquor, we shall find that it differs essentially in its chemical and physical properties from the juice of grapes before fermentation. Its agreeable sweet taste is changed; it has not the laxative quality of must, but affects the head and occasions intoxication; lastly, on distillation with a gentle heat, a volatile, colourless, and highly inflammable liquor called *spirit of wine*, or *alcohol*, is obtained. When the juice contains too large a portion of sugar, it is customary to add a small portion of tartar; on the contrary, if the saccharine matter be deficient, and that salt in excess, sugar is to be added. If the juice only is fermented white wine is produced; but when the fermentation has been conducted on the skins or *marc*, red wines are obtained, both from white and coloured grapes. The same fruit in different seasons requires to be managed differently; and almost every kind of wine requires a different, and in some cases, even an opposite mode of treatment. Thus the fine *bouquet* of Burgundy is completely dissipated by a too rapid fermentation, while, on the contrary, the fermentation of the strong wines of Languedoc, celebrated chiefly for the quantity of alcohol which they contain, should be long and complete. When the sugar is not completely decomposed, or the fermentation checked, the wine retains a sweet taste; a more perfect decomposition, with a brisker fermentation, renders it strong and spirituous.

It is then put in casks, where the fermentation still continues, though in an imperceptible degree; a scum rises on its surface, and escapes by the bung-hole, which at first requires to be covered only by a leaf or tile. In proportion as the fermentation subsides, the mass of wine diminishes in bulk, and it becomes necessary to watch this cautiously, in order to supply the place with new wine, so as to keep the cask always full. In some districts, they fill up every day during the first month; every other during the second; and every eight days afterwards, till the time of racking. The effect of this insensible fermentation, is the gradual

increase of the quantity of alcohol, and the separation of the tartar, which is deposited in considerable quantity in the casks, along with the colouring matter of the wine. It is of a dark red colour, very hard, and is known under the name of *argol.* When this is dissolved in water, and purified by crystallization, and reduced to powder, it forms the *cream of tartar* of commerce.

Weak wines, and those that have been too long fermented, are very apt to become sour; but the *acidity* may be corrected by the addition of sugar; or more effectually by neutralizing the acid. For this purpose the alkalies and alkaline earths, especially lime, have been employed. It was formerly the practice to use the acetate of lead to destroy the acidity in weak wines, but this murderous practice has long since been laid aside. *Ropiness* may be got rid of by exposing the bottles to the sun and air, by adding a small quantity of vegetable acid, and by fining. The *mustiness* and other ill flavours communicated by the casks or cork, may sometimes be removed by agitating the wine in contact with the air, or by the introduction of common carbonic acid gas, by pumping.

The odour and flavour of wines depend altogether on climate, soil, and the mode of conducting the fermentation; the same climate, soil, and mode of culture, often produce wines of very different qualites. Position and aspect alone, all other circumstances being the same, make a prodigious difference. The vine grows in every soil, but that which is light and gravelly, is best adapted for its cultivation. It flourishes extremely well in volcanic countries; thus some of the best wines of Italy are made in the neighbourhood of Vesuvius. The famous Tokay wine is also made in a volcanic district, as are several of the best French wines. The vine also flourishes well in primitive countries, and especially among the debris of granite rocks; thus the celebrated Hermitage wine is made from a soil of this description.

The quality and flavour of the more fully fermented wines depend principally on the mode of conducting the process of fermentation; but the sweet and half-fermented wines derive their taste immediately from the fruit. "Malaga, Frontignac, Tokay, Vino Tinto, Montifiuscone, Schiraz, and the Malmsey wines of the Greek islands, are sweet to the taste, and consequently the result of imperfect fermentation; Champagne, Gooseberry, and all sparkling wines, owe their briskness to carbonic acid gas; Hock, Rhenish, Mayne, Barsac, Burgundy, Claret. and Hermitage, contain a certain quantity of uncombined acid, and are termed light and dry; while Marsala, Madeira, Sherry, and Port, are dry and strong. The odour of *Sherry* is pleasant and aromatic; the taste warm, with some degree of the agreeable bitterness of the peach kernel; the taste of *Port* is austere and bitterish; *Claret* is less rough, thinner, slightly acidulous, and highly flavoured; and *Hock* acidulous. Of the common white wines, Marsala is undoubtedly the strongest." The roughness and flavor of red wines are generally derived from the husks of the fruit, and when it is wished to impart these qualities in a higher degree, various astringent and chemical preparations are used, such as catechu, kino, logwood, rhatany root, the juice of aloes, elder-berries, &c. A yellow tint is given to many wines by means of burnt sugar: raspberries, orris-root, fir-tops, and a variety of other ingredients are employed for the purpose of communicating their respective flavours. In Madeira wines, as well as those of Xeres and San Lucar, it is the practice to use sweet and bitter almonds; hence the *nutty* flavour of many of these wines. Notwithstanding these differences in the qualities of wines, the essential principles found in all of them are the following: one or more acids, viz. the *tartaric,* the *malic,* the *citric,* the *carbonic,* and in some instances the *acetic;* extractive matter, which in old wines is deposited with the tartar, and constitutes part of what is called crust, a *volatile oil,* on which the flavour depends; *colouring* matter; and *alcohol.*—*Medical Botany.*

Laborde, in his account of Spain, gives the following description of the mode of drying raisins:—"In the kingdom of Valencia they make a kind of ley with the ashes of rosemary and vine branches, to which they add a quart of slaked lime. This ley is heated, and a vessel, full of holes, containing the grapes is put into it. When the branches are in the state desired, they are generally carried to naked rocks, where they are spread on beds of the field artemisia, and are turned every two or three days till they are dry. In the kingdom of Granada particularly towards Malaga, they are simply dried in the sun, without any preparation. The former have a more pleasing rind, but a less mellow substance; the skins of the latter are not so sugary, but their substance has a much greater relish; therefore the raisins of Malaga are preferred by foreigners and are sold at a higher price; to this, their quality may likewise contribute, they are naturally larger, and more delicate, than those of the kingdom of Valencia."—*The Library of Entertaining Knowledge.*

Viola odorata.

VIOLA ODORATA.——SWEET VIOLET.

CLASS V. PENTANDRIA.—ORDER I. MONOGYNIA.

NATURAL ORDER, VIOLACEÆ.———THE VIOLET TRIBE.

THE subject of this article is a common indigenous plant, growing in most parts of our island, and universally esteemed for the beauty of its flowers, and the sweetness of their scent. It is most frequently found in woods, and moist banks; but a variety, with double flowers, is chiefly cultivated for medicinal purposes.

The violet is a native of every part of Europe, and Desfontaines says, that it is common in Barbary, in the palm groves, where the blue and white grow promiscuously, and flower in the winter. Hasselquist found it in Palestine and Japan, and Loureiro saw it in China near Canton. The ancient fables feigned that violets were the first food of the cow Io, one of Jupiter's mistresses, and hence the Greek word Ion, of which *Viola* is a diminutive.

The violet is liable to change in the colour of its blossom from blue purple to red purple, pale flesh colour, and white. In the white specimens the lateral petals are sometimes without hair which grow on the inside claws in the purple kinds, and which would appear to afford a peculiar protection to the nectary; but the fragrance is the same. (A double purple variety of exquisite odour is frequently cultivated in gardens, flowering both in spring and autumn. The stalks of the late flowers are so short as scarcely to elevate the capsules above ground, and in such petals are often wanting.)

The petals give colour to the syrup of violets, for which purpose they are cultivated in large quantities at Stratford upon Avon (Mr. Purton, of Alcester, prepares twenty or thirty gallons annually, for the use of the druggists, chiefly from the petals of the wild violets. The flowers are gathered by women and children, and the petals carefully picked from the calyx.) This syrup is very useful in many chemical investigations, to detect an acid or an alkali, the former changing the blue colour to red, and the latter to green. Slips of white paper, stained with the juice of the petals, and kept from the air and light, answers the same purpose.

QUALITIES AND CHEMICAL PROPERTIES.—The odour of violets is particularly pleasant, but they are somewhat bitter to the taste. They yield their colour and flavour to boiling water. At a sitting of the Académie Royale de Médecine, M. Boullay read a paper on the analysis of the violet, from which it appears that it contains an active alkaline principle, which is bitter and acrid, similar to the *Emetine* of Ipecacuanha, and which he proposes to name, *Emetine of the violet, indigenous emetine* or *violine*. According to M. Orfila, it is energetically poisonous. It is found to reside equally in the root, leaves, flowers, and seeds of the plants; but associated with different proximate principles, so as to have its action on the animal system modified. It is procured in the same manner as that from the Ipecacuanha, and possesses the same properties, excepting its being united to the *malic* acid, instead of the *gallic*. (*Journal de Pharmacie. Jan.* 1824.)

The violet is the emblem of modesty; and if the rose reminds us of the dazzling radiance of a full-blown beauty, the violet is like some pretty village girl who shrinks from a fixed gaze, and blushes to be admired. This flower has always been a favourite of the poets, nor could it well be otherwise; how could any thing so sweet, so charming, and so simple, be unmentioned by Homer, Theocritus, or Shakespeare?

Thus we find the violet covering the meadows near the delightful grotto of Calypso:

> ———Four fountains of serenest lymph
> Their sinuous course pursuing side by side,
> Strayed all around, and every where appeared
> Meadows of softest verdure, purpled o'er
> With Violets; it was a scene to fill
> A God from heaven with wonder and delight.
> *Odyssey, Book* v. *Cowper's Translation.*

In one of the Idylls of Theocritus we are reminded that though the rose is fair, it decays with time, and though the violet is beautiful in the spring, it quickly grows old. In another, the poet desires that brambles may bear the violet, and the narcissus grow upon the juniper, that all things may be changed, in short, because Daphnis is dead. But perhaps the most original use made of this flower is in the 10th Idyll, where Battus in praising a dark and slim beauty, consols her for the colour of her complexion by telling her that though the violet is dark, it is in great request for garlands. There is some Doric humour as well as elegance in the passage:

> Others, Bombyce, call you wondrous thin,
> And cry, how sun-burnt is that Syrian skin!

I love the richness of that gorgeous hue,
The Violet is decked in deepest blue,
The Hyacinth is darker still than you;

Yet in each wreath they claim the earliest place,
Sweet as the smiles which crown that lovely face.

Virgil, the prince of the Latin poets, perhaps the most elegant of all poets, does not forget this graceful flower. In the first of the following quotations *pallentes violas* probably means the white violet.

Huc ades, o formose puer. Tibi lilia plenis
Ecce ferunt nymphæ calathis: tibi candida Nais,
Pallentes violas, et summa papavera carpens,
Narcissum, et florem jungit benè olentis anethi.
Tum casia, atque aliis intexens suavibus herbis,
Mollia luteolâ pingit vaccinia calthâ.
Virg. Ecl. ij.

Pro molli viola, pro purpureo narcisso
Carduus et spinis surgit paliurus acutis.
Virgil. Ecl. v.

O come! the Nymphs for thee in baskets bring
Their lilied stores: for thee the blooming spring
The white-armed Naiads rifles; violets pale,
The poppy's flush, and dills which scent the gale,
Cassia, and hyacinth, and daffodil,
With yellow marigold the chaplet fill.
Wrangham's Transl.

——for the daffodil and violets' bloom,
Thistles and briars in rank luxuriance gloom.
Wrangham's Transl.

Shakespeare repeatedly mentions it, as for instance, in the opening speech of Twelfth Night.

If music be the food of love, play on;
Give me excess of it; that, surfeiting,
The appetite may sicken, and so die.—
That strain again; it had a dying fall:

O, it came o'er my ear like the sweet south,
That breathes upon a bank of violets,
Stealing and giving odour.

And in the following passages:

I know a bank whereon the wild thyme blows,
Where ox-lips and the nodding violet grows;
Quite over-canopied with luscious woodbine,
With sweet musk-roses, and with eglantine:
There sleeps Titania, some time of the night,
Lull'd in these flowers with dances and delight.
Midsummer Night's Dream, Act. ii. *Scene* 2.

To gild refined gold, to paint the lily,
To throw a perfume on the violet,
To smooth the ice, or add another hue
Unto the rainbow, or with taper-light
To seek the beauteous eye of heaven to garnish,
Is wasteful, and ridiculous excess.
King John, Act. iv. *Scene* 2.

——————O Proserpina,
For the flowers now that, frighted, thou let'st fall
From Dis's waggon!—daffodils,
That come before the swallow dares, and take
The winds of March with beauty; violets, dim,
But sweeter than the lids of Juno's eyes,
Or Cytherea's breath; pale primroses,
That die unmarried, ere they can behold
Bright Phœbus in his strength.
Winter's Tale, Act. iv. *Scene* 3.

For Hamlet, and the trifling of his favour,
Hold it a fashion, and a toy in blood;
A violet in the youth of primy nature,
Forward, not permanent; sweet, not lasting;
The perfume and suppliance of a minute;
No more.
Hamlet, Act. i. *Scene* 3.

Here is a delightful passage in Milton's best style—a mixture of vigour and tenderness.

Ye vallies low, where the mild whispers use
Of shades, and wanton winds, and gushing brooks,
On whose fresh lap the swart-star sparely looks;
Throw hither all your quaint enamelled eyes,
That on the green turf suck the honied showers.
And purple all the ground with vernal flowers.
Bring the rathe primrose that forsaken dies,
The tufted crow-toe, and the pale jessamine,
The white pink, and the pansy freakt with jet,
The glowing violet,

The musk-rose, and the well-attired woodbine,
With cowslips wan, that hang the pensive head,
And every flower that sad embroidery wears:
Bid amaranthus all his beauty shed,
And daffodillies fill their cups with tears,
To strow the laureat hearse where Lycid lies.
Milton. Lycidas.

Since all things are in a state of change, but nothing utterly perishes, the atoms that once formed a human body, will again appear in the shape of herbs and flowers, and the poets with their usual felicity of thought, imagine that violets will spring from the remains of some loved and agreeable form. Thus Laertes says of Ophelia,

——————Lay her i' the earth,
And from her fair and unpolluted flesh,
May violets spring;
Hamlet, Act v. *Scene* 1.

Underneath this turf is laid
Prudence Baldwin, once my maid;
From her happy spark, here let
Spring the purple violet. *Herrick.*

We will conclude these quotations with an epigram from the Greek Anthologia;

I send a wreath of earliest flowers
For thee, dear girl, for thee,
Each gift of spring's most lavish hours
Was culled and wove by me.

The virgin lily here is seen,
The moist narcissus too;
The purple violet decked with green,
The rose of crimson hue.

Then while these flowers around your hair
You twine sweet black-eyed maid,
No longer mock a lover's prayer,
For you, like them must fade!

Triticum hybernum?

TRITICUM HYBERNUM.—WINTER OR COMMON WHEAT.

Class III. TRIANDRIA.—Order II. DIGYNIA.

Natural Order, GRAMINEÆ.——THE GRASS TRIBE.

(*a*) Ervum Hirsutum.[a]

Culm jointed, three feet high; dark green smooth leaves; spikes long and close, the lower flowers imperfect; the calyx containing generally four flowers; valves of the corolla generally smooth, but in some of the varieties terminated by awns; nectaries small, fringed and silky. Its varieties are white and red lammas wheat, without awns; white and red bearded wheat. The corn, or grain-bearing plants, are styled the cerealia, from Ceres, the goddess of corn. That one, however, on which any people chiefly depend for their food is called *corn* by them; as *wheat* is in England, *oats* in the northern lowlands of Scotland, *rye* in the sandy districts on the southern shores of the Baltic sea, and *maize* throughout the United States of America. They are all made annuals, both in their stems and roots, the whole plant dying after the seed has been completely formed and ripened, and sometimes even before the latter process has fully taken place.

When the seed is perfectly ripe, the vessels separate, the point of separation speedily heals, the grain may then be easily threshed out from the chaff in which it had lain buried, and sometimes it sheds itself spontaneously.

The corculum, "little heart," or germ, contains a principle, which, if rightly managed, can produce, not only a plant of wheat, but plant after plant, until, in the course of a few harvests, its progeny would become capable of feeding a nation. Thus, notwithstanding the ravages of war, the vital principle of vegetation, destined for the chief support of the human race, has not been lost, but it has remained to man, like fire, which he alone has subjected to his use, to be called forth at his bidding, and to contribute to his support, comfort, and prosperity. One circumstance connected with the increase of the cereal grains is very singular. An insect deposits its eggs in the very core of the primary shoot of the wheat, so that it is completely destroyed by the larvæ or grubs; and did not the plant possess within itself the means of repairing the injury, the care and toil of the husbandman would be lost. But happening, as it does, in the spring, shoots immediately grow forth from the knots, the plant becomes more firmly rooted, and produces, probably a dozen stems and ears, where, but for the temporary mischief, it might have yielded only one. The inherent power of multiplication possessed by vegetables is indeed most extraordinary. On the 2nd of June, 1766, Mr. Miller, of Cambridge, sowed some grains of the common red wheat, and, on the 8th of August, a single plant was taken up, and divided into eighteen parts, and each part planted separately. A second division produced sixty-seven plants, and a third amounted to five hundred. They were then divided no farther; and some of them produced upwards of one hundred ears from a single root, many of which measured seven inches in length, and contained between sixty and seventy grains. The whole number of ears which, by this process, were produced from one grain of wheat, was twenty-one thousand one hundred and nine; which yielded three pecks and three quarters of clear corn; the weight of which was forty-seven pounds, seven ounces; and the whole number of grains was about five hundred and seventy-six thousand, eight hundred and forty. In this case, there was only one general division of the plants made in the spring; had a second taken place, Mr. Miller thinks the number of plants would have amounted to two thousand!

In the early books of Scripture, we often read of corn, and of Ruth gleaning with the maidens of Boaz, "unto the end of barley-harvest, and of wheat-harvest." Pliny says, that in the champaigne country about Byzacium in Africa, wheat had been known to yield a hundred and fifty fold. He mentions that a procurator-general of that province, under Augustus Cæsar, sent the emperor from thence a plant of wheat which had nearly four hundred straws springing from one grain, and meeting in one and the same root. Sicily is said to be the first country in Europe where grain was cultivated. Ceres was not only worshipped in that island, but is often represented on the ancient Sicilian coins; and garlands of ears were offered to her before they began to reap. At what period wheat was first cultivated in England is only matter of conjecture. Cæsar found corn growing on the coast, but of what kind we are not informed. Other seeds are dispersed through the earth by winds and currents, in the hairy coats of quadrupeds, and in the maws of birds. But the corn-plants are said, in common with many other important vegetable productions, to follow the course of man alone. Even hostile armies have been instruments of their diffusion. Cortez, the inhuman con-

[a] From the Celtic *erw*, a *ploughed field*, of which it is the pest; or, from *eruo*, Gr. *to pluck out*; as necessary to be eradicated from the growing corn; to separate the *tares* from the wheat.

This is a very troublesome weed in corn-fields; in wet seasons whole crops have been overpowered and wholly destroyed by it; hence it is sometimes called *Strangle Tare*. All sorts of cattle will eat it. The seeds when ground in flour affect it with a strong disagreeable flavour.

Dr. Withering observes, that the *Tine Tares* (*E. hirsutum*,) not only illustrate the old adage, that "ill weeds grow apace," but that they likewise increase by superabundant fertility; for it appears from experiment, that a single seed will, by the produce of one plant only, multiply itself a thousand fold in a very short time.

queror of Mexico, wrote from thence to the King of Spain, "I beseech your Majesty to give orders that no vessel sail for this country without a certain quantity of plants and grain." The foundation of the wheat-harvests of that country is said to have been three or four grains, which a slave of the conqueror accidentally, in 1530, mixed with a quantity of rice. These he carefully preserved, and used so advantageously as to entitle him to public gratitude, but even his name is unknown; while the Spanish lady, Maria d'Escobar, who first imported the same blessing into Peru, has her name, and her distribution of the produce of successive harvests as seed among the farmers, celebrated in history. A chief, named Duaterra, was the first person who actually reared a crop of wheat in New Zealand. On leaving Port Jackson the second time, to return home, he took with him a quantity of it, and much surprised his acquaintances by informing them that this was the very substance of which the Europeans made biscuit, such as they had seen and eaten on board their ships. He gave a portion of it to several persons, all of whom put it into the ground, and it grew well; but, before it was well ripe, many of them were impatient for the produce; and, as they expected to find the grain at the roots of the stems, similar to their potatoes, they examined them, and, finding no wheat under the ground, all, except one, pulled it up, and burned it. The chiefs ridiculed Duaterra about the wheat; and all he urged would not convince them that wheat would make bread. His own crops, and that of his uncle, who had allowed the grain to remain, came, in time, to perfection, and were reaped and threshed; and, though the natives were much astonished to find that the grain was produced at the top and not at the bottom of the stem, yet still they could not be persuaded that bread could be made of it. A friend afterwards sent Duaterra a steel mill to grind his wheat, which he received with no little joy. He soon set to work before his countrymen, ground some wheat, and they danced and shouted with delight when they saw the meal. He afterwards made a cake, and baked it in a frying-pan, and gave it to the people to eat, which fully satisfied them of the truth of his assertions. The chiefs now begged more seed, which they sowed; and such of it as was attended to grew up as strong a crop as could be desired.

Thus, wheat as it is the plant most necessary to mankind, so it is the most general; and it ought not to be over-looked, that its presence in any region of the earth attests that man is there in an advanced state of civilization. In the sepulchres of the Egyptian kings, which were opened by the scientific men who accompanied the French army into Egypt, the common wheat was found in vessels so perfectly closed that the grains retained their form and colour; and thus, buried, as it had been, for several thousand years, it shows as clearly the civilization of that country as its temples now in ruins; because the corn-plants, such as they appear under cultivation, do not grow wild in any part of the earth.

Mr. Martin Farquher Tupper, the talented author of "Proverbial Philosophy," succeeded in raising grain from some ancient Egyptian seed presented to him by Mr Pettigrew, the distinguished Surgeon and Antiquary. "In 1838," says this gentleman, "Mr. Pettigrew, the well-known lecturer on Egyptian antiquities, gave me out of two small glasses in his own private museum, six grains of wheat, and as many of barley, furnishing me at the same time, with the following information as regards their history:—Sir Gardiner Wilkinson, during his recent travels in the Thebaid, opened an ancient tomb, (which had probably remained unvisited by man, during the greater part of 3,000 years,) and from some alabaster sepulchral vases therein, took with his own hands, a quantity of wheat and barley that had been there preserved. Portions of this grain, Sir G. Wilkinson had given to several of his antiquarian friends, and among them to Mr. Pettigrew, who made me a sharer in the venerable harvest. Until the spring of 1840, the twelve corns of which I so became possessed, remained among certain contemporary bronzes and images, in their separate paper box, but about that time, finding myself in the country, and much occupied in horticultural pursuits, I bethought myself of those ancient seeds, and resolved to try my fortune in rearing them. Now, the question being strictly a question of identity, and more or less involving personal character, I should, perhaps, be pardoned, if I endeavour to satisfy the unbelieving mind, by descending to a few humble details of my care and caution. I ordered four garden pots of well-sifted loam, and not content with my gardener's care in sifting, I emptied each pot into an open paper, and put the earth back again, morsel by morsel, with my own fingers. It is next to impossible that any other seed should have been there. I, on the 7th of March, planted my grains, three in each pot, at the angles of an equilateral triangle, so as to be sure of the spots where the sprouts would probably come up, by way of additional security against any chance seed unseen, lurking in the soil. Of the twelve, one only germinated, the plant in question, the blade first becoming visible on the 22nd of April, the remaining eleven after long patience I picked out again: and found in every instance that they were rotting in the earth, being eaten away by a number of white worms. It is a curious speculation, by the bye, whether this might not have been a re-wakening of dormant animal life, for it is by no means improbable that the little maggots, on which we might build such high arguments, were the produce of ova deposited on the grains, at a period involving the very youth of time, by some patriarchal flies of ancient Egypt. My interesting plant of wheat, remained in the atmosphere of my usual sitting room, until change of place and air seemed necessary for its health, when I had it carefully transplanted to the open flower-bed, where it has prospered ever since. The first ear began to be developed on the 5th of July; and although it may disappoint expectation, to find that its appearance is in most respects, similar to that of a rather

weakly plant of English wheat, that called by farmers 'bearded,' (which be it noted, I have since learned is sometimes known by the name of Egyptian,) still I have no hesitation in expressing my own certainty, that it is the product of the identical corns given to me by Mr. Pettigrew. A second ear has made its appearance since this was written, and both have assumed a character, somewhat different from all our known varieties. After all, why should not common wheat claim as ancient ancestry as any other kind; and why should not the banks of the Nile have teemed, though perhaps, more luxuriantly, with a harvest similar to those we now see waving on the bank of hoary Father Thames? Moreover, what else, let me ask, could have been expected, than that a seed should produce its like? for I have until now, omitted to state what may easily be verified on inspection of the remaining quantities of ancient seed, now in the possession of others, that the grains in question, only differ from modern wheat, in their brown and shrunk appearance, (the seeming result of high antiquity, and now exposure to the air,) the slight difference, nevertheless observable, is that the ears are less compact, the grains rather plumper, and the beard more thorn-like than happens in common cases. It would, perhaps, be puerile, were I to explain the various methods taken by me to protect the plant; let it suffice to know, that all proper care, excluding that worst of cares, over-care, was given to it. The small size and weakness of the plant, may in one light, be regarded as collateral evidence of so great an age, for assuredly, the energies of life would be sluggish after having slept so long; however, the season of its sowing, spring instead of autumn, will furnish another sufficient cause, but after making all due allowance his drawback, I still think it very improbable, that supposing the plant a modern one, our rich soil of ' ' ry should have produced so lightly. There are two ears on separate stalks; they are respectively 2½ and 3 inches long, the former being much blighted, and the stalk is about 3 feet in height. In conclusion, I take occasion to remark, that homely as the theme may in itself be, the growing of a grain of corn, small as may be accounted the glory of a success in which man's mind can have had almost nothing to effect, and little as I can have to communicate, still the subject will be admitted by all, to be one of no common interest. If, and I see no reason to disbelieve it, if this plant of wheat, now fully developed, be indeed, the product of a grain preserved since the time of the Pharoahs, we moderns, may, within a little year, eat bread made of corn which Joseph might have reasonably thought to store in his granaries, and almost literally snatch a meal from the kneading troughs of departing Israel. Time, which has been no element to the mummied seed, is conquered by so weak a weapon as a straw, and its infancy and dotage meet in friendly astonishment at a humble banquet of Pharaonic bread.

The great Author of our religion continually exemplified the important truths which he delivered, by a reference to natural objects; those especially of pasturage and husbandry, as peculiarly calculated to make an impression on the mind. A harvest-field was by him compared to the world, in which both bad and good are permitted, under the similitude of tares and wheat, to grow together: angels are the reapers; and the solemn day of final retribution is the gathering of the wheat into the garner. Even the solitary blade, which springs by the way-side, or grows upon a rock, or brings forth abundantly in rich and cultivated soil, though unnoticed by the casual observer, speaks in forcible language to the ear of the Christian. It also tells of the resurrection and the life: '*For verily, except a corn of wheat fall into the ground, and die, it abideth alone; but if it die, it bringeth forth much fruit.*

[a] "The grand feature of this month is Corn-harvest. It is a time for universal gladness of heart. Nature has completed her most important operations. She has ripened her best fruits, and a thousand hands are ready to reap her with joy. It is a gladdening sight to stand upon some eminence and behold the yellow hues of harvest amid the dark relief of hedges and trees, to see the shocks standing thickly in a land of peace, the partly reaped fields—and the clear, cloudless sky, shedding over all its lustre. There is a solemn splendour, a mellowness and maturity of beauty thrown over the landscape. The wheat crops shine on the hills and slopes, as Wordsworth expresses it, 'like golden shields cast down from the sun.' For the lovers of solitary rambles, for all who desire to feel the pleasures of a thankful heart, and to participate in the happiness of the simple and lowly, now is the time to stroll abroad. They will find beauty and enjoyment spread abundantly before them. They will find, the mowers sweeping down the crops of pale barley, every spiked ear of which so lately looking up bravely at the sun, is now bent downward in a modest and graceful curve, as if abashed at its ardent and incessant gaze. They will find them cutting down the rustling oats, each followed by an attendant rustic who gathers the swath into sheaves from the tender green of the young clover, which, commonly sown with oats, to constitute the future crop, is now shewing itself luxuriantly. But it is in the wheat field that all the jollity, and gladness, and picturesqueness of harvest are concentrated. Wheat is more particularly the food of man. Barley affords him a wholesome, but much abused potation; the oat is welcome to the homely board of the hardy mountaineers; but wheat is especially, and every where, the 'staff of life.' To reap and gather it in, every creature of the hamlet is assembled. The farmer is in the field, like a rural king amid his people—the labourer, old or young, is there to collect what he has sown with toil, and watched in its growth with pride; the dame has left her wheel and her shady cottage, and with sleeve-defended arms, scorns to do less than the best of them;—the blooming damsel is there, adding her sunny beauty to that of universal nature; the boy cuts down the stalks which

[a] For this interesting account of the Corn Harvest, we are indebted to Mr. Howitt's Book of the Seasons.

overtop his head; children glean amongst the shocks; and even the unwalkable infant, sits propt with sheaves, and plays with the stubble, and

'With all its twined flowers.'

Such groups are often seen in the wheatfield as deserve the immortality of the pencil. There is something too about wheat harvest, which carries back the mind and feasts it with the pleasures of antiquity. The sickle is almost the only implement which has descended from the olden times in its pristine simplicity—to the present hour neither altering its form, nor becoming obsolete amid all the fashions and improvements of the world. It is the same now as it was in those scenes of rural beauty, which the scripture history, without any laboured description, often by a simple stroke, presents so livingly to the imagination; as it was when tender thoughts passed

Through the sad heart of Ruth, when sick for home,
She stood in tears amid the alien corn;

when the minstrel king wandered through the solitudes of Paran, or fields reposing at the feet of Carmel; or 'as it fell on a day that the child of the good Shunamite went out to his father to the reapers. And he said unto his father, My head, my head! And he said to a lad, Carry him to his mother. And when he had taken him, and brought him to his mother, he sate on her knees till noon, and then died.' 2 Kings, c. iv. 18—20.

Let no one say it is not a season of happiness to the toiling peasantry; I know that it is. In the days of boyhood I have partaken their harvest labours, and listened to the overflowings of their hearts as they sate amid the sheaves beneath the fine blue sky, or among the rich herbage of some green headland beneath the shade of a tree, while the cool keg plentifully replenished the horn, and sweet after exertion were the contents of the harvest field basket. I know that the poor harvesters are among the most thankful contemplators of the bounty of Providence, though so little of it fall to their share. To them harvest comes as an annual festivity. To their healthful frames, the heat of the open fields, which would oppress the languid and relaxed, is but an exhilarating and pleasant glow. The inspiration of the clear sky above, and the scenes of plenty around them, and the very circumstance of their being drawn from their several dwellings at this bright season, open their hearts and give a life to their memories; and many an anecdote and history from the simple annals of the poor are there related, which need only to pass through the mind of a Wordsworth or a Crabbe, to become immortal to their mirth or woe."

Bread made out of wheat flour, when first taken out of the oven or skillet, is unprepared for the stomach. It should go through a change, or ripen before it is eaten. Young persons, or persons in the enjoyment of vigorous health, may eat bread immediately after it is baked, without any sensible injury from it, but weakly and aged persons cannot; and no one can eat such without doing harm to the digestive organs. Bread, after being baked, goes through a change similar to the change in newly brewed beer, or newly churned buttermilk—neither being healthy until after the change. During the change in bread it sends off a large portion of carbon, or unhealthy gas, and imbibes a large portion of oxygen, or healthy gas. Bread has, according to the computation of the physicians in London, one-fifth more nutriment in it when ripe, than it has when just out of the oven. It not only has more nutriment, but imparts a much greater degree of cheerfulness. He that eats old ripe bread will have a much greater flow of animal spirits than he would if he were to eat unripe bread.

Bread, as before observed, discharges carbon and imbibes oxygen. One thing in connexion with this thought should be particularly noticed by all housewives. It is, to let the bread ripen where it can inhale the oxygen in a pure state. Bread will always taste of the air which surrounds it while ripening; hence it should ripen where the air is pure. It should never ripen in the cellar, nor in a close cup-board, or in a bed-room. The noxious vapours of a cellar or cupboard never should enter into and form a part of the bread we eat. The writer of this article has often eaten bread of this kind, and has felt strongly disposed to lecture the mistress of the house on the subject of keeping bread in a pure atmosphere. Every man and woman ought to know, that much of health and comfort depends upon the method of preparing their food. Bread should be light, well baked and properly ripened, before it is eaten.—*Nat. Rep.*

The table in Davy's Agricultural Chemistry, says Mr. Burnett, shews, that wheat not only exceeds other corn in the absolute quantity of nutritive matter it contains, but that the different proximate principles very remarkable in their relative proportions, and the superiority of wheaten bread, depends upon the large quantity of *gluten* that its flour contains. When separated by washing from the starch with which it is combined, gluten comes into the market under the name of Maccaroni, Vermicelli, &c. In Italy, and especially in Naples, there are immense quantities manufactured, both for exportation and home consumption. It forms the ordinary and favorite food of the poorer classes in Italy, especially in the Neapolitan states; and Maccaroni is sold by the yard, at the corners of almost every street in the city of Naples. There is another advantage of no slight economical importance that wheat possesses over other grain, which is, that its flower not only contains more nutritious matter, but yields also a greater quantity; for fourteen pounds of wheat yield thirteen pounds of flour, while fourteen pounds of oats yield only eight pounds, and an equal quantity of barley but twelve pounds.

In the language of flowers Wheat denotes riches.

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Government of Maharashtra
on 17 February, 2016